

JUNE 30, 1989

DEAR ART, FRANK, AND JAAK:

THIS IS A LIST OF INFORMATION NEEDED FOR OUR SAMPLING STANDARDIZATION MEETING ON JULY 24TH. IF YOU HAVE ANY PROBLEMS OR QUESTIONS PLEASE CONTACT ME.

1. PICTURE-BOOK INCLUDING COPPER AND TIN PERCENTAGES, OF MATERIAL CONSUMED AT YOUR PLANT.
 2. DETAILED SAMPLING AND LAB PROCEDURES AT YOUR LOCAL PLANT. PLEASE INCLUDE THE PROCESS, NUMBER OF PEOPLE, AND TYPES OF EQUIPMENT.
 3. LIST OF MATERIALS THAT YOU WOULD SAMPLE.
 4. DETAILED SPECIFICATIONS FOR EACH MATERIAL CLASSIFICATION. THE MOST IMPORTANT CLASSIFICATIONS FOR THIS MEETING ARE;
1) HIGH-GRADE COPPER 88-92% COPPER, 2) GUNMETAL/REDBRASS, 3) RADIATORS, 4) REFINERY BRASS. EACH CLASSIFICATION SHOULD INCLUDE THE FOLLOWING INFORMATION:
 - * TYPES OF MATERIAL FOR EACH CLASSIFICATION.
 - DEFINITION FOR EACH TYPE OF MATERIAL.
 - COPPER AND TIN PERCENTAGES FOR EACH TYPE OF MATERIAL.
 - *WEIGHT AND SIZE RESTRICTIONS FOR EACH CLASSIFICATION.
 - *MAXIMUM PERCENTAGES OF ALL UNDESIRABLE ELEMENTS FOR EACH CLASSIFICATION.
 - *MAXIMUM COMBUSTIBLE AND MOISTURE CONTENT FOR EACH CLASSIFICATION.
 5. PACKAGING REQUIREMENTS.
 - *MATERIAL LOADED LOOSE OR PACKAGED.
 - *REQUIRED PAPER WORK.
 6. MIXING INSTRUCTIONS-WHICH MATERIALS CAN BE COMBINED TOGETHER IN A LOAD.
- PLEASE HAVE ALL THE WRITTEN PAERWORK TRANSLATED INTO SPANISH.
PLEASE MAKE 40 ENGLISH AND 10 SPANISH COPIES.

THANKS,

MITCH

STANDARDIATION PROJECT
CHEMETCO

MATERIALS THAT ARE SAMPLED UPON ARRIVAL AT CHEMETCO

NO 2 AND NO 1 COPPER

- A. NO 1 INGOTS.
- B. NO 2 INGOTS.
- C. NO 1 COPPER CHOPS.
- D. NO 2 COPPER CHOPS.
- E. SILICON BRONZE TURNINGS/BORINGS.
- F. PHOS BRONZE TURNINGS.
- G. TIN PLATED NO 2 COPPER STAMPINGS.

RED BRASS

- A. RED BRASS INGOTS.
- B. RED BRASS TURNINGS/BORINGS.
- C. HARD BRASS TURNINGS/BORINGS.
- D. FOUNDRY RED BRASS TURNINGS/BORINGS.
- E. SEMI RED BRASS TURNINGS/BORINGS.
- F. GEAR BRASS TURNINGS/BORINGS.

RADIATORS

- A. SHREDDED RADIATORS AND HEATER CORES.
- B. MODINE TUBES.

REFINERY BRASS

- A. ALUMINUM BRONZE TURNINGS/BORINGS.
- B. YELLOW BRASS TURNINGS.
- C. MANGANESE BRONZE TURNINGS/BORINGS.
- D. MIXED BRASS TURNINGS/BORINGS.
- E. REFINERY BRASS BREAKAGE (SOLIDS).

MIXABLE IRONY COPPER

- A. IRONY TURNINGS/BORINGS.
- B. TELEPHONE BREAKAGE.
- C. 2 IN 1 WIRE.
- D. IRONY BULLETS.
- E. IRONY BULLETS CONTAMINATED WITH LEAD.

SHREDDER SCRAP

- A. SHREDDED TELEPHONE SCRAP.
- B. HIGH GRADE 60 - 68% SHREDDER SCRAP.
- C. PULVERIZED SHREDDER SCRAP WITH ZINC.

SKIMMINGS

ALL LOTS RECEIVED ARE SAMPLED.

COPPER SLAGS

ALL LOTS RECEIVED ARE SAMPLED.

SAMPLING PROCEDURES (PLANT FACILITY)
CHEMETCO

NUMBER OF SAMPLERS AT CHEMETCO: 1

TYPES OF EQUIPMENT USED: 1 FORKLIFT FOR TRANSPORTING THE SAMPLES
WITHIN THE YARD.
A COAL SHOVEL USED FOR BARREL SAMPLES.
A SMALL SAMPLE SHOVEL USED FOR BUCKET
SAMPLES.

WHEN A LOT IS RECEIVED AT CHEMETCO THAT REQUIRES A SAMPLE TO DETERMINE
AN ACCURATE COPPER CONTENT WE USE THE FOLLOWING PROCEDURE.

- A. THE LOT IS UNLOADED IN THE YARD WILL REMAIN SPREAD OUT UNTIL
THE SAMPLER HAS PHYSICALLY TAKEN THE SAMPLE.
- B. THE SAMPLER WILL VIEW THE ENTIRE LOT TO DETERMINE PROPORTIONS (SKIMS
MIXED TURNINGS/BORINGS).
- C. THE SAMPLER WILL NOW PHYSICALLY DEVELOP A SAMPLE THAT IS
REPRESENTATIVE OF THE LOT.
- D. THE SAMPLE WILL THEN BE PLACED IN A SEALED BUCKET OR A 55 GALLON
DRUM (DEPENDING UPON MATERIAL TYPE).
- E. THE BUCKET OR DRUM WILL BE MARKED WITH THE LOT NUMBER AND PLACED
IN A HOLDING AREA UNDER ROOF UNTIL THE FOLLOWING DAY WHEN IT IS
LOADED ON A TRAILER AND SHIPPED TO OUR LAB IN ST. LOUIS MO.

NO 2 AND NO 1 COPPER INGOTS, RED BRASS INGOTS.

WHEN INGOTS ARE UNLOADED AT THE CHEMETCO FACILITY THE LOT REMAINS
SPREAD OUT UNTIL THE SAMPLER VIEWS THE ENTIRE LOT. HE THEN DETERMINES
HOW MANY DIFFERENT TYPES OF INGOTS THE LOAD CONSISTED OF AND TAKES
A PROPORTIONATE SAMPLE. (WHEN WE RECEIVE INGOTS AT OUR CHEMETCO FACILITY
THEY ARE IN TRUCKLOAD LOTS CONSISTING OF A HOMOGENOUS CAST SIZE, COLOR,
AND WEIGHT. THEREFORE TWO PIECES ARE GENERALLY SENT TO THE LAB TO
BE DRILLED AND ANALYZED.

SILICON BRONZE TURNINGS/BORINGS, PHOS BRONZE TURNINGS
SILICON BRONZE STAMPINGS/PHOS BRONZE STAMPINGS

WHEN SILICON BRONZE AND/OR PHOS BRONZE TURNINGS ARE RECEIVED AT OUR
CHEMETCO FACILITY THE LOT WILL REMAIN SPREAD OUT UNTIL THE SAMPLER
PHYSICALLY TAKES THE SAMPLE. HE WILL VIEW THE ENTIRE LOAD TO DETERMINE
PROPORTIONS (IF NECESSARY) AND TAKE A BUCKET SAMPLE. THE LOT NUMBER
IS WRITTEN ON THE BUCKET AND PLACED IN A HOLDING AREA UNTIL THE
FOLLOWING DAY WHEN THE SAMPLE IS LOADED ON A TRAILER AND SHIPPED
TO THE LAB IN ST. LOUIS MO.

THE SAME PROCEDURE ALSO APPLIES TO SILICON BRONZE STAMPINGS AND
PHOS BRONZE STAMPINGS.

RED BRASSES AND REFINERY BRASS TURNINGS/BORINGS.

- A. ALL RED BRASS TURNINGS/BORINGS.
- B. ALL REFINERY BRASS TURNINGS/BORINGS.
- C. ALL MIXED RED BRASS TURNINGS/BORINGS.
- D. ALL MIXED REFINERY BRASS TURNINGS/BORINGS.
- E. ALL LOW GRADE IRONY TURNINGS/BORINGS.

WHEN ANY OF THE ABOVE TYPES OF MATERIALS ENTER THE CHEMETCO PLANT FACILITY THEY ARE SAMPLED IN SEALED PLASTIC BUCKETS. THE MATERIAL IS SPREAD OUT ON THE GROUND SO THE SAMPLER CAN VIEW THE ENTIRE LOT BEFORE HE TAKES THE SAMPLE.

AFTER THE SAMPLER HAS VIEWED THE ENTIRE LOT HE THE PRODUCES A BUCKET SAMPLE WHICH IS REPRESENTATIVE OF THE ENTIRE LOT. AFTER THE SAMPLE HAS BEEN SUCCESSFULLY TAKEN THE LOT NUMBER IS WRITTEN ON THE BUCKET WITH A PAINT MARKER, THE LID IS SECURELY FASTENED, AND THE BUCKET IS PLACED IN A HOLDING AREA UNDER ROOF UNTIL THE FOLLOWING DAY WHEN IT IS LOADED ON THE SAMPLE TRAILER AND DELIVERED TO THE LAB IN ST. LOUIS, MO.

COPPER SLAGS AND SKIMMINGS

ALL COPPER BASE SKIMMINGS AND SLAGS ARE SAMPLED WHEN RECEIVED AT CHEMETCO. AFTER THE MATERIAL IS UNLOADED IT REMAINS SPREAD OUT SO THE SAMPLER CAN VIEW THE ENTIRE LOT BEFORE PREPARING A SAMPLE. SAMPLES FOR COPPER BASE SKIMMINGS AND SLAGS ARE TAKEN IN IN DRUMS (55 GALLON DRUMS AVE WT OF WACH SAMPLE 250 - 500 LBS DEPENDING ON THE DENSITY OF THE MATERIAL).

AFTER THE SAMPLER HAS VIEWED THE ENTIRE LOT HE PREPARES A REPRESENTATIVE SAMPLE USING A COAL SHOVEL TO FILL THE BARRELL. HE MUST GET AN ACCURATE REPRESENTATION OF FINES AND RUNS FOR THE SAMPLE TO BE CORRECT. THIS MAY INVOLVE HAND PICKING SOME OF THE MATERIAL BASED ON THE RATIO OF FINES TO SOLIDS (RUNS).

AFTER THE SAMPLE HAS BEEN SUCCESSFULLY COMPLETED THE LOT NUMBER IS WRITTEN ON THE DRUM AND PLACED IN A HOLDING AREA UNDER ROOF UNTIL THE FOLLOWING DAY WHEN IT IS LOADED ON THE SAMPLE TRAILER AND DELIVERED TO THE LAB IN ST. LOUIS MO.

PACKAGING REQUIREMENTS
CHEMETCO

NO 2 COPPER

LOAD SPECIFICATIONS: LOOSE AND CLEARLY DIVIDED.

WHEN THE NO 2 COPPER IS LOADED LOOSE ON THE TRAILER IT ENABLES US TO UNLOAD, GRADE, PROCESS, AND STOCKPILE THE MATERIAL MORE EFFICIENTLY. WHEN THE NO 2 COPPER IS PACKAGED IN BOXES WE SPEND A CONSIDERABLE AMOUNT OF TIME SEPERATING THE CARDBOARD AND PALLETS FROM THE MATERIAL. WHEN A TRAILER IS RECEIVED WITH TWO OR MORE LOTS OF NO 2 COPPER, LIGHT COPPER, TINNED COPPER, NO 1 COPPER WE NEED A CLEAR DIVISON IN ORDER TO OBTAIN AN ACCURATE WEIGHT FOR EACH TYPE OF MATERIAL. IF COPPER TURNINGS ARE SHIPPED AS A SEPERATE LOT WE PREFER THAT THEY ARE PLACED ON THE REAR OF THE TRAILER.

RED BRASSES

LOAD SPECIFICATIONS: LOOSE AND CLEARLY DIVIDED.

WHEN THE RED BRASS IS LOADED LOOSE ON THE TRAILER IT ENABLES US TO UNLOAD, GRADE, AND STOCKPILE THE MATERIAL MORE EFFICIENTLY. WHEN A TRAILER IS RECEIVED WITH TWO OR MORE LOTS OF RED BRASS (SEMI RED BRASS, HARD BRASS, GEAR BRASS, FOUNDRY RED BRASS ETC) WE NEED A CLEAR DIVISION IN ORDER TO OBTAIN AN ACCURATE SPLIT WEIGHT FOR EACH TYPE OF MATERIAL. IF RED BRASS TURNINGS ARE SHIPPED AS A SEPERATE LOT WE PREFER THAT THEY ARE PLACED ON THE REAR OF THE TRAILER.

RADIATORS

LOAD SPECIFICATIONS: BALES WRAPPED WITH METAL BANDS

WE PREFER THAT THE RADIATORS ARE WRAPPED WITH METAL BANDS AND LOADED DOWN THE CENTER OF THE TRAILER. THIS ENABLES US TO DUMP THE ENTIRE LOAD REDUCING THE POSSIBILITY OF A JAMM-UP.

LOOSE RADIATORS CAUSE PROBLEMS BECAUSE THE TEND TO JAMM WHEN THE LOAD BEGINS TO DUMP AND IN MOST CASES THEY ARE STACKED TO THE ROOF OF THE TRAILER SOMETIMES CAUSING ROOF DAMAGE.

IRONY RADIATORS

LOAD SPECIFICATIONS: BALES WRAPPED WITH METAL BANDS.

SAME PROCEDURE AS RADIATORS OUTLINED ABOVE.

HEATER CORES

LOAD SPECIFICATIONS: LOOSE AND CLEARLY DIVIDED.

HEATER CORES THAT ARE LOADED LOOSE ARE EASY TO DRAG OFF OR DUMP IF IT IS A STRAIGHT 20 TON LOAD. WE HAVE RECEIVED HEATER CORES IN BOXES AND IT REQUIRES A SIGNIFICANT AMOUNT OF TIME TO REMOVE THE CARDBOARD AND PALLETS BEFORE THEY CAN BE PROCESSED (BALED) AND CHARGED. IF SMALL AMOUNTS OF HEATER CORES WILL BE SHIPPED WITH RADIATORS WE REQUEST THAT THE HEATER CORES BE PLACED ON THE REAR OF THE TRAILER.

SHREDDED RADIATORS

LOAD SPECIFICATIONS: LOOSE AND CLEARLY DIVIDED.

SAME PROCEDURE AS HEATER CORES OUTLINED ABOVE.

IF A LOAD OF RADIATORS IS SHIPPED TO THE CHEMETCO FACILITY THAT CONSISTS OF RADIATORS, AND IRONY RADIATORS WE NEED A CLEAR DIVISION SO A SPLIT WEIGHT MAY BE OBTAINED.

REQUIRED PAPERWORK FOR ALL INBOUND RAW MATERIALS

A. A PACKING LIST MUST ACCOMPANY EACH INBOUND TRAILER.

THIS PACKING LIST SHOULD INCLUDE THE FOLLOWING INFORMATION;

- A. ORIGIN WAREHOUSE.
- B. SEAL NUMBER.
- C. MATERIAL TYPE(S).
- D. MATERIAL WEIGHT.
- E. DUNNAGE.
- F. TRAILER NUMBER.
- G. LOAD DIAGRAM.

MATERIAL SPECIFICATIONS SUMMARY

NO. 2 AND NO. 1 COPPER

OUR NO. 2 COPPER CATEGORY CONSISTS OF ALL HIGH GRADE MATERIAL RANGING FROM 88% COPPER TO 99% PLUS COPPER. WE DO NOT ACCEPT CUPRO NICKEL OR HIGH NICKEL ITEMS.

NO. 1 COPPER 98% PLUS

NO. 2 COPPER 94 TO 98%

LITE COPPER 88 TO 94%

SILICON BRONZE 89 TO 93%

RED BRASSES AND BRONZE

OUR RED BRASS CATEGORY CONSISTS OF ALL HIGH TIN ITEMS THAT CONTAIN 78 TO 90% COPPER.

SEMI RED BRASS	CU 78	SN 2.50
RED BRASS	CU 80	SN 3.50
FOUNDRY RED BRASS	CU 82	SN 4.25
HARD BRASS	CU 80	SN 6.00
GEAR BRASS	CU 80	SN 10.00
PHOS. A	CU 94	SN 4.00
PHOS. C	CU 91	SN 7.00
PHOS. D	CU 89	SN 9.0

WATER METERS

METERS ARE OFTEN USED IN RED BRASS PACKAGES, BUT SOME ARE USED SEPERATELT BECAUSE OF IRON AND PLASTIC.

LOW GRADE TRIDENTS AND BADGERS. CU 78 SN 2.50

MIXED METERS	CU 80	SN 3.0
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METERS WITH IRON AND PLASTIC.	CU 62	SN 2.0
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IRON ON THE BOTTOM OF METERS CAN CAUSE AN 11% TO 14% COPPER DEDUCTION.

RADIATORS

SEVERAL DIFFERENT ITEMS FALL INTO OUR RADIATOR CATEGORY. DEDUCTIONS ARE MADE FOR IRON SIDES, CAPS, HOSES AND PLASTIC.

AUTO & TRUCK RADIATORS	CU 64	SN 2.50
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AUTO & TRUCK RADIATORS WITH IRON.	CU 52	SN 2.00
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HEATER CORES	CU 56	SN 2.25
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MODINE TUBES	CU 56	SN 2.25
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SHREDDED RADIATORS VARY IN COPPER, DEPENDING ON HOW MANY HEATER CORES AND TUBING ARE PRESENT.

REFINERY BRASS

REFINERY BRASS RANGES FROM 61% TO 87% COPPER. THE MAIN CONCERN IS THAT WE NEED MATERIAL WITH LESS THAN 15% IRON.

ALUMINUM BRONZE	CU 80	
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BRASS SCREEN	CU 87	
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MANGENESE BRONZE	CU 60	
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COCKS AND FAUCETS	CU 67	SN 1.50
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SHREDDER SCRAP	CU 69	SN 1.0
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YELLOW BRASS	CU 66	
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ROD BRASS	CU 60	
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AD TUBES	CU 70	SN 1.0
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THE COPPER PERCENTAGES VARY IN TURNINGS AND SOLIDS.

YELLOW BRASS

A YELLOW BRASS PACKAGE SHOULD RUN 66% COPPER , WITH VIRTUALLY NO IRON. THE PACKAGE WILL CONTAIN PLUMBING BRASS, DECORATIVE BRASS, STAMPINGS, AND TURNINGS OF DIFFERENT COPPER PERCENTAGES.

C B M

COPPER BEARING MATERIAL VARIES BETWEEN 15% AND 60% COPPER, DEPENDING ON IRON, ALUMINUM, PLASTIC FINES AND CONTAMINANTS.

MOTORS

MOTORS CONSIST OF 10% TO 35% MATERIAL. MOTORS MUST NOT BE LARGER THAN HEAD SIZE, AND DEDUCTIONS ARE MADE FOR ALUMINUM WINDINGS, UNPUNCTURED SEALED UNITS, FREE IRON AND ALUMINUM.

UNPUNCTURED SEALED UNITS CU 0.00

SEALED UNITS (PUNCTURED) CU 12.0

WHOLE MOTORS CU 15.0

SHREDDED MOTORS CU 18.0

ARMATURES CU 18.0 TO 26.0

ALTERNATORS CU 16.0

STATORS CU 35.0

COPPER SLAGS

WE LOOK FOR AROUND 30% COPPER IN OUR SLAG.

SKIMMINGS

SKIMMINGS SHOULD RUN AROUND 45% TO 60% COPPER AND SOMETIMES CONTAIN TIN.

NUMBER ONE COPPER, BARE BRIGHT (99.9% CU) -

THIS COPPER IS NEW, CLEAN, BARE BRIGHT, UNCOATED UNTINNED, AND UNALLOYED WIRE AND SCRAP. THE WIRE MUST BE AT LEAST SIXTEEN GAUGE AND THE TUBING MUST HAVE ONE END OPEN TO AVOID WATER OR MOISTURE ENTRAPMENT. PUNCHINGS AND CLIPS, THAT ARE .020 IN THICKNESS, OR LARGER MUST BE CLEAN, DRY AND KEPT SEPARATE. TROLLEY WIRE, PIECES LARGER THAN 36", CASTINGS, AND WARE PLATES ARE NOT ACCEPTABLE. ALL MATERIAL SHOULD BE IN BOXES ON SKIDS, OR BALES. DRUMS ARE NOT ACCEPTABLE.

NUMBER ONE COPPER, BURNT (99% CU)-

THIS COPPER CONSISTS OF BURNT, UNCOATED, UNTINNED, UNALLOYED WIRE AND SCRAP. THIS ALSO INCLUDES SCRAP AT LEAST SIXTEEN GAUGE AND SCRAP FREE OF ASH. USED TUBING MUST BE FREE OF DIRT AND CORROSION. IT MUST ALSO HAVE ONE END OPEN, TO AVOID WATER ENTRAPMENT. BURNT, BRITTLE WIRE, TROLLEY WIRE, CASTINGS, ENGRAVING PLATES, BOILER TUBES, TURNINGS, BURNT LEAD CABLES, BRIQUETTED COPPER, AND WELDED BUS BAR ARE NOT ACCEPTABLE. ALL MATERIAL MUST BE IN BOXES, ON SKIDS OR BALES AND SHOULD BE NO LONGER THAN 36" IN LENGTH; WITH THICKNESS OF ANY PUNCHINGS OR CLIPS BEING AT LEAST .020.

USE THESE MATERIAL CODES TO BUY UNDER

CODE	MATERIAL	CU%	SN%	USE/TRADE	BUYING CODE
101	BARLEY NO.1 BARE BRITE	99.9		TRADE	112
	BERRY NO.1 BURN'T NO COATING	99		USE/TRADE	101
	NO.1 GRADE CHOPS	99		USE/TRADE	106
	NO.1 HALSTEAD/WYNN	99		TRADE	131
	NO.1 HALSTEAD/ZEOLENOBLE	99		TRADE	132
	NO.1 HALSTEAD/ PINE HALL	99		TRADE	133
	NO.1 CHASE	99		TRADE	137
	SUDRONIC	99		TRADE	950

NUMBER TWO COPPER - (96% CU)

THIS COPPER RANGES FROM 94% TO 98% , AND WE ARE LOOKING FOR AN AVERAGE OF 96%. WE WILL PRORATE FROM 96% UP OR DOWN. STEEL, ASH AND NON-COPPER ITEMS CAN BE TAKEN OFF OF THE WEIGHT AS DUNNAGE OR REFLECTED IN THE ASSAY. WE HAVE 98-1 TIN COATED WIRE, ENAMEL WIRE 92 - 97, TUBING 99%, SOLDER JOINTS, CHOPS, BURNT WIRE NOT BRITTLE. SOME OF THE SILVERISH COATING COULD BE NICKEL INSTEAD OF TIN, THE COATING WOULD CRACK WHEN BENT AND WOULD BE MAGNETIC, IF YOU BROKE OFF A SMALL PIECE. TWYERS AND BOSCH PLATES WOULD BE 97% AS LONG AS THEY DID NOT HAVE AN EXCESS AMOUNT OF IRON. COPPER TURNS ARE BOUGHT AT 96% WITH OIL OFF TOP AS DUNNAGE. NOT ACCEPTABLE IS BERYLLIUM COPPER AND CUPRO NICKEL TUBES. CUPRO NICKEL TUBES ARE SLIGHTLY MAGNETIC AND HAVE A LIGHTER SHINY LOOK.

LITE COPPER (AVERAGE IS 92%) -

RUNS FROM 88 TO 94% COPPER CONSISTING OF COPPER GUTTERING, ENAMEL COPPER HAIR WIRE, SHEET COPPER, ICE BOX FREEZER UNITS, 91% COPPER, OIL COOLERS FROM TRUCKS 86-90% DEPENDS ON IRON OR BRASS SPACERS, LARGE LOCOMOTIVE TRANSFORMER COILS WITHOUT IRON, RUNS 92-93%, WITH STEEL CENTERS RUNS 55% COPPER. WATCH FOR EXCESSIVE TAR AND ROCK ON GUTTERING AND DEDUCT AS DUNNAGE. COPPER COILS ON PLASTIC AND PAPER SOME TIMES MAKE LITE COPPER, BUT MOST OF THE TIME ARE HIGH GRADE REFINERY.

CODE	<u>MATERIAL</u>	CU%	SN%	PB%	OTHER	USE TRADE	BUYING CODE
101	TINNED COPPER WIRE	98	.5			USE	102
	COPPER TURNINGS	96				USE	100
	#194 ALLOY OLIN	97.5			2.35FE	USE/TRADE	139
	NO.2 GRADE CHOPS	97.0		1.0		USE	107
	NO.2 CU CLEAN HI GRADE	98	.5			USE	103
	NO.2 COPPER	96		1.0		USE	104
	NO.2 ASARCO	96		1.0		TRADE	134
	NO.2 LO GRADE	95				USE	135
	SILICON BRONZE SOLIDS	93				USE	419
	EVERDUR SOLIDS	93				USE	838
	LT. COPPER	92		1.0		USE	105
	LT. COPPER ASARCO	92				TRADE	135
	90/10 BRASS CLIPS	90			ZN 10%	USE	907
	ASHY/BURNT COPPER WIRE	90				USE	815

RED BRASS - (78-90 COPPER, 2.5 TO 10 TIN)

HAS VARIOUS RANGES FROM PHOS BRONZE 90% COPPER 10 TIN, GEAR BRASS 80%- 10 TIN, HARD BRASS 80%- 6 TIN, FOUNDRY 82%-4.25 TIN, REGULAR RED 80%-3.5 TIN, MIX METER 80%-3 TIN, AND SEMI-RED BRASS 78%-2.5 TIN, ALL OF WHICH ARE NON MAGNETIC AND TURN VARIOUS SHADES OF GRAY TO BLACK WITH 2% AgNO₃. ALMOST ALL RED BRASSES COME AS A MIXED PACKAGE AND CARE SHOULD BE TAKEN TO PERCENTAGE THE HI TO LOW SO IT CAN BE CATAGORIZED INTO ONE OF THE VARYING CATAGORIES. ONE PERCENT TIN COULD BE COUNTED AS 6% COPPER WHEN DOING FINAL ADJUSTMENTS. EXAMPLE, 78% COPPER AND 4% TIN COULD BE TAKEN AS REGULAR RED AT 80% COPPER AND 3.5% TIN BECAUSE WE USED THE EXTRA TIN TO BRING UP THE COPPER. LINED JOURNALS AND BRASS BACKS ARE NOT ACCEPTABLE IN RED BRASS PACKAGES.

CODE	<u>MATERIAL</u>	CU%	SN%	PB%	OTHER	USE TRADE	BUYING CODE
102							
	PHOS GRADE "A"	94	4			USE/TRADE	908
	PHOS GRADE "C"	91	7			USE/TRADE	913
	PHOS GRADE "D"	89	9			USE/TRADE	914
	GEAR BRASS	80	3		7ZN	USE/TRADE	212
	HARD BRASS SOLIDS	80	5		4ZN	USE/TRADE	208
	HARD BRASS TURNS	79	5.75	5	4ZN	USE/TRADE	205 \$\$.02 UNDER SOLIDS
	FOUNDRY RED BRASS SOLIDS	82	4.25	5.0	5ZN	USE/TRADE	215
	FOUNDRY RED TURNS	81	4.0	5.0	5ZN	USE/TRADE	206 \$\$.02 UNDER SOLIDS
	RED BRASS SOLIDS	80	3.5	5.0		USE/TRADE	211
	RED BRASS TURNS	79	3.25			USE/TRADE	210 \$\$.02 UNDER SOLIDS
	SEMI RED BRASS SOLIDS	78	2.5			USE/TRADE	207
	SEMI RED BRASS TURNS	78	2.5			USE/TRADE	213
	MIXED METERS	80	3.0			USE	300
	TRIDENT METERS	78	2.5			USE	303
	IRONY METERS	62	2.00	4.8		USE	304
	UNLINED JOURNALS	73	4.25	12		USE	203
	LINED JOURNALS	63	4	15		TRADE	204

RADIATORS (65% COPPER 2.50 TIN) -

WITHOUT ANY IRONY SIDES AND FINES COME FROM AUTOMOBILES AND TRUCKS. SPECIAL CARE SHOULD BE TAKEN WHEN ESTIMATING THE AMOUNT OF HEATER CORES (56% COPPER 2.25 TIN) PRESENT IN A LOAD, 2% IS ALLOWED PER CONTRACT. THE IRONY SIDES CAN RUN FROM 5% TO 30% IRON, AND IN RARE CASES WHEN HAVING COMPLETE HOUSING OR SHROUD IT COULD EVEN RUN 35% COPPER. IRONY CAPS AND RUBBER HOSES CAN ALSO ADD 2 TO 8% TO THE DUNNAGE OF RADIATORS THAT HAVE THEM ON. IRON IS DEDUCTED AS DUNNAGE. THERE HAS TO BE A 3 CENT CHARGE FOR CUTTING OVER SIZED RADIATORS. MODINE TUBES (56% COPPER 2.50 TIN) ARE THE TUBES INSERTED INTO THE COPPER FINES THAT MAKE UP THE COMPONENTS OF A RADIATOR. A SPECIAL CODE (507) IS BEING SET UP FOR RADIATORS WITH 15 TO 20% IRON.

JOURNALS LINED (63% COPPER 4 TIN) -

WITH A LEAD TIN BABBIT THAT HAS A HIGH ANTIMONY (Sb) CONTENT. COMES FROM RAILROAD CARS. LINED JOURNALS ARE NOT ACCEPTABLE AND MUST BE SWEATED OR UNLINED (74% COPPER 4.25 TIN)/FREE OF BABBIT.

USE THESE MATERIAL CODES TO BUY UNDER

CODE	MATERIAL	CU%	SN%	PB%	OTHER	USE/TRADE	BUYING CODE
102	UNLINED JOURNALS	73	4.25	12		USE	203
	LINED JOURNALS	63	4	15		TRADE	204
103	UNSWEATED AUTO RAD	65	2.5	7.0	25ZN	USE	201
	SHREDDED RADIATORS	58	2.5	8.0	30ZN	USE	214
	HEAT CORE	56	2.25	4.5	30ZN	USE	216
	MODINE TUBES	56	2.5	6.0	25ZN	USE	209
	AUTO RAD WITH IRON	52	2.00		FE 20	USE	507 20% FE

REFINERY BRASS (61-87)-

REFINERY BRASS WHICH COVERS A LARGE RANGE FROM 85% COPPER, 15 ZINC SCREEN TRADED, ALUMINUM BRONZE 80% COPPER 10 ALUMINUM, .70/30 BRASS TRADED, YELLOW BRASS 65% COPPER 2 LEAD BALANCE ZINC, ROD BRASS 60% COPPER 3 LEAD BALANCE ZINC, TO MANGANESE BRONZE 60% COPPER. IN ORDER TO CONSUME REFINERY WE WANT LESS THAN 10 TO 15% IRON. ITEMS SUCH AS 85/15, 70/30, YELLOW BRASS, AND ROD BRASS WHICH WE TRADE MUST BE FREE OF IRON AND CONTAMINATION; WITH LESS THAN 1% OIL.

CODE	MATERIAL	CU	SN	PB	OTHER	USE/TRADE	BUYING CODE
107	85/15 PIPE & SOLIDS	85			15ZN	USE/TRADE	831
	ALUMINUM BRONZE SOLIDS	83			10AL	USE	407
	ALUMINUM BRONZE TURNS	82			10AL	USE	408
	BRASS SCREEN	88			20ZN	USE	306
	BURN'T PLATING RACKS	80				USE	806
	ASHY BURN'T COPPER WIRE	80				USE	815
	70/30 BRASS	70			30ZN	TRADE	320
	ADMIRALTY CONDENS TUBE	70	1		29ZN	USE/TRADE	313
	YELLOW BRASS SOLID	66				USE/TRADE	301
	YELLOW BRASS TURNS	62				USE	302
	YELLOW BRASS PIPE	65			35ZN	USE	832
	MISC. REF. BRASS	61				USE	305 LESS THAN 15% FE
	MIX BRASS SOLIDS	70				USE	307
	ROD BRASS SOLIDS	62	.50	3.0	35ZN	TRADE	322 NOT MIXED WITH TURNS
	ROB BRASS TURNS	60	.50	3.0	35ZN	TRADE	321 LESS THAN 1% OIL
	MAGANESE BRONZE SOLID	60				USE	413
	MAGANESE BRONZE TURNS	55				USE	414 \$.03 UNDER SOLIDS

LEAD, SOFT LEAD WITHOUT ANTIMONY IS USED. HARD LEAD WITH HIGH ANTIMONY IS TRADED

CODE	MATERIAL	CU%	SN%	PB%	OTHER	USE/TRADE	BUYING CODE
122	60/40 SOLIDS	1%	59	40		USE	143
	50/50 SOLDER	1%	50	49		USE	144
	40/60 SOLDER	1%	40	59		USE	145
	30/70 SOLDER	1%	30	69		USE	146
	CABLE LEAD	30%	1	60		USE	159
	SCRAP LEAD SOFT	1%		98		USE	316

COCKS AND FAUCETS (67% COPPER AND 1.5 TIN) -

PLUMBING FIXTURES, H-STANDS, FLEX GAS PIPES, FLUSH VALVES AND DRAINS. YOU WILL GET DIE CAST FAUCET HOUSINGS, WITH RED BRASS H-STANDS ATTACHED. SOME OF THE H-STANDS ARE YELLOW BRASS FITTINGS WITH COPPER TUBING CONNECTING THE FITTINGS. SWEAT FITTINGS CONNECTED TO COPPER TUBING, RED BRASS VALVES, AND H-STANDS CONNECTED TO GALVANIZED PIPE AND FITTINGS, DRAINS AND EVEN YELLOW BRASS ITEMS. LOOK TO MAKE SURE YOU HAVE ENOUGH TIN IN THE LOT FOR 1.50%; USUALLY THE COPPER IS THERE 98% OF THE TIME.

SHREDDER SCRAP (69% COPPER AND 1% TIN)

IS THE NON MAGNETIC BY PRODUCT OF AN AUTOMOBILE SHREDDER . CONTAINS COPPER, RED BRASS, YELLOW BRASS, AND SOME RADIATOR PIECES. IT WILL CONTAIN SOME IRON THAT IS ATTACHED TO BRASS OR COPPER ITEMS.

USE THESE MATERIAL CODES TO BUY UNDER

CODE	MATERIAL	CU%	SN%	PB%	OTHER	USE/TRADE	BUYING CODE
108	AUTO SHRED SCRAP	69	1.0	2.0	15ZN	USE	504
	COCKS & FAUCETS	67	1.50	3.0	25ZN	USE	202
	SORTED BRASS	70				USE	808

CU CLAD AND 2 & 1 WIRE (30% OR 70%)

CU CLAD WIRE IS SIMPLY STEEL WIRE CENTER HAS A COPPER COATING CLAD TO THE OUTSIDE. TWO AND ONE, OR ONE AND TWO AS OTHER TYPES MIGHT BE CALLED SIMPLY REFERS TO HAVING TWO COPPER WIRES TO EVERY CLAD WIRE, OR ONE COPPER TO EVERY TWO CLAD WIRES. THE SIZES OF THE WIRES CAN BE EQUAL OR DIFFERENT AND DOES VARY THE ASSAY. **ALL WIRE IS BOUGHT FOR TRADING AND MUST BE IN TIGHTLY BOUND COILS ON PALLETS OR CHOPPED IN GAYLORD BOXES.**

CODE	MATERIAL	CU%	SN%	PB%	OTHER	USE/TRADE	BUYING CODE
110	2/1 WIRE	70			30% FE	TRADE	530
	CU CLAD WIRE	30			70% FE	TRADE	531
	CU CLAD FROM 2&1	33				TRADE	533
	CHOPPED CU CLAD	32				TRADE	537

C.B.M. (COPPER BEARING MATERIAL) -

SOMETIMES REFERRED TO AS THE COPPER IRONY SCRAP. RANGES FROM 15 TO 60% COPPER AND VARIES IN AMOUNTS OF IRON AND FINES OR CONTAMINATIONS. MOTORS 15%, ARMATURES 25%, TRANSFORMERS 20%, AND FIELDS 35 % ARE ALL USED ALONG WITH D.A.B. AS DIRECT ADD IRONY. ALL OTHERS DUE TO ALUMINUM, PLASTIC, AND FINES ARE EXPORTED OR TRADED.

SLAG (30%) -

IS HARD ROCK LIKE TEXTURE. BOUGHT FOR EXPORT ONLY.

CODE	MATERIAL	CU%	USE/TRADE	BUYING CODE
111	75% COPPER BEARING <25% FINES	75	USE	113
	67% COPPER BEARING <25% FINES	67	USE	114
	50% COPPER BEARING <25% FINES	50	USE	115
	IRONY COPPER >40% CU	45	USE	500
	IRONY RADIATORS	35	TRADE	508
	IRONY AL. RADIATORS CUT OFF	37	TRADE	509
	BRASS TURNS WITH FE	30	TRADE	510
	IRONY COPPER WITH COMB. & FINES	30	TRADE	540
	MISC. IRONY BRASS	20	TRADE	545
	MISC. IRONY COPPER	25	TRADE	546
112	GUILDING METAL CLAD SCRAP	13	USE	503
	AUTOMOTICE CLAD SCRAP	19	USE	502
	AUTO ARM, STATORS, FIELD ROTARS	25	USE	505
	WHOLE FRACTIONAL H.P MOTORS	15	USE	525
	SHRED, ELECTRIC MOTORS	20	USE	526
	ELECTRIC MOTOR ARMATURES	23	USE	527
	ELECTRIC MOTOR FIELDS	35	USE	528
	SHRED. MOTORS 1/2 SEAL UNITS	13	USE	826
	TRANSFORMERS	22	USE	835
120	BRASS REF. SLAG	20	TRADE	700
	SLAG	30	TRADE	706
	FURNACE BOTTOM & SONS	25	TRADE	709

SKINS (45-60% COPPER) -

CONSISTS OF RUNS, SPATTERS, SKINS, FINES, DROSS, REFRACTORY, BRICK AND SANDSTONE. IF THE RUNS OR METALLIC IS YELLOW IN COLOR, AND MAY CONTAIN ALUMINUM METALLICS, THERE IS A GOOD CHANCE NO TIN. EVEN IF THE RUN, METALLICS ARE DARK PINKISH GRAY, IT DOESN'T NECESSARILY MEAN TIN. SOMETIMES YOU CAN'T FIND INDICATORS SUCH AS A PARTIALLY CAST VALVE, OR RED BRASS ITEMS THAT INDICATE THEY ARE MAKING TIN BEARING ITEMS OUT OF THE METAL. MUST HAVE LESS THAN 50% FINES FOR USAGE. TRADING MATERIAL WITH OVER 50% FINES AND NO TIN.

FINES

SMALL GRANULAR IN TEXTURE AND ARE BOUGHT FOR EXPORT ONLY. THE FEW EXCEPTIONS ARE GRINDINGS WITH COPPER CONTENT ABOVE 60% COPPER AND TIN CONTENT ABOVE 1% SN, WHICH WE WILL USE HERE. ABSOLUTELY NO DUST OR POWDER. RECOVERY ON FINES IS MINIMAL DUE TO LARGE AMOUNTS GOING UP STACKS UNLESS BRIQUETTED OR PALLETIZED IN TO LARGE PIECES.

CODE	MATERIAL	CU%	SN%	USE/TRADE	BUYING CODE
125	COPPER BASE SKIMS	45		USE	
601					
	COPPER BASE DROSS 75% FINES	35		TRADE	602
	COPPER BASE SPATTERS (RUNS)	65		USE	605
	BRASS BASE SKIMS	40		USE	608
	BRASS BASE DROSS >50% FINES	30		TRADE	609
	BRONZE BASE SKIMS	45	1	USE	613
	TIN BEARING SKIMS & METALLIC	50	2	USE	617
130	CU BASE GRINDINGS	70		USE	604 NOT FINE
	BRONZE POWDER	60		TRADE	606
	BUFFINGS & WHEELABRATOR	40		TRADE	607
	INCINERATOR ASHES	30		TRADE	645
	COPPER BEARING ASH	30		TRADE	647
	COPPER RESIDUE	55		TRADE	648
	FLUE DUST	40		TRADE	649
135	COPPER MUD	45		TRADE	630
	COPPER CEMENTATION	30		TRADE	631

COMBUSTIBLE

BOUGHT FOR TRADING IN VARIOUS GRADES.

NO.1 INSULATE YIELD IS GREATER THAN 65% RECOVERY AND MUST BE LARGER THAN 16 GAUGE WIRE.

NO.2 INSULATED YIELD AT LEAST 50% COPPER.

NO.3 INSULATED YIELD AT LEAST 40% COPPER RUN 35 TO COPPER. NO TELEPHONE CORD EXTENTIONS, WHICH ARE MADE OF COPPER FOIL OVER NYLON. TELEPHONE CORDS OR SO THIN IT WILL YIELD 0% COPPER.,

CODE	MATERIAL	CU%	SN%	USE/TRADE	BUYING CODE
151	INSULATED COPPER WIRE	80		TRADE	801
	INSULATED PLATING RACKS	45		TRADE	802
	PINS ON TAPE	58	1	USE	803
	*1 INSULATED COPPER WIRE	65		TRADE	827
	*2 INSULATED COPPER WIRE	50		TRADE	828
	*3 INSULATED COPPER WIRE	35		TRADE	829

ITEMS NOT ACCEPTABLE AT THIS TIME FOR CHEMETCO 'S USAGE.

CUPRO NICKEL - ALL TYPES

MINNOX TURNS

LEAD/TIN TURNS FROM JOURNALS(HiI Sb)

REFER CUT OFFS

PLATING RACKS BURN'T OR INSULATED

SKIMS OVER 50% FINES

SEAL UNITS UNLESS PUNCHURED, DRAINED, AND LESS THAN 1/2 LOAD OF MOTORS

FINES LOW GRADE NO TIN

ABSOLUTELY NO POWDER

AND NO TELEPHONE EXTENTION CORDS (FOIL OR NYLON TYPE)

NO FIGURE 8 OR INSULATED CU CLAD

METALS IDENTIFICATION

BY Frank Leffler

Some common tools and equipment needed to identify metals are:

- Eyes to determine colors - red, yellow, white and gray.
- Magnet on a string or chain so you can determine if a piece is magnetic. You can see the slight pull easier if a magnet is on a string.
- 2% Ag No3 or brass spot will help in determining difference between manganese and aluminum bronze and other alloys of the red brass categories.

We do have a 740 model material analyzer that can read by means of X-ray up to four elements per mode and we have 8 modes. You cannot set a machine up to read every element and with precise accuracy; but we feel comfortable with our program and in most cases can read the accuracy of tin in solids and turns within .50 to 1% most of the time. Our coppers are not quite that accurate but can usually be read within 2% accuracy. There will be certain alloys where one of the elements is being read in part as another element.

*1 copper is usually clean unalloyed copper in the form of bus bar, wire 16 gauge on a wire gauge are larger, clean tubing only with open ends. There can be no soldered joints, no coating such as Sn, green oxide or build-up in side of tube. Assay is 99% +.

*2 copper is ranged from 94 to 98% and we are looking for 96% average. We will prorate from 96 up or down. Steel, ash and non-copper items can be taken off the weight as dunnage or reflected in assay. We have 98-1 Sn coated wire, enamel wire 92-97, tubing 99%, soldered joints, chops, burn't wire not brittle. Some of the silverish coating could be nickel instead of tin, the coating would crack when bent, and would be magnetic, if you broke off a small piece. Tuyers, Bosch plates would be 97% as long as they didn't have an excess amount of Fe. Some of the enamel wire such as hair wire would be in the light copper range of 92-93% copper. Copper turns are bought at 96% with oil off top. Cupro nickel tubes when using only the eyes can look a little more shiny & pink, than Cu tubing, but if you use a magnet it will pull. Bought as a trading item only. Beryllium copper is a no win item and should not be bought.

Lite Copper (average is 92%) runs from 88 to 94% copper consisting of copper guttering, Cu hair wire, sheet copper, ice box freezer units, 91% copper, oil cooler from trucks 86-90% depends on Fe or brass spacers, large locomotive transformer coils without Fe runs 92-93 with steel centers runs 55% copper. Watch for excessive tar and rock on guttering and deduct as dunnage. Everdure tanks are in this range 93-94% copper. Cu coils on plastic and paper some times make lite Cu but take a good look because a lot of the coils are Ref. items, less than 88% Cu.

Phos. bronze reddish gray in color is in range of 90 to 95% copper and 3 to 10% Sn depending on what class or alloy you have. One use is in electrical connectors, clips, and springs. Brass spot on 2% Ag No3 will turn gray. There is a 90% copper, 10% tin pressed bushing which could be classified in this category.

Hard Brass (80 Copper, 6 Sn) non magnetic and turns black with 2% Ag No3. Usually consists of paper mill screen, sleeves, pump housings, impellers, grave markers, vases from graves, some P.O. mail box doors, "Squirrel Cages" or one piece bearing holders, rudders, brush holders (the bronze part only), and large sleeves 2 to 3' diameter and housings. Small 3/4" bushings that are non magnetic and when stepped on bust are usually hi Sn, the tongue and groove ones are usually hi Cu and no Sn, and are more red in color. There are also magnetic bushings of this type which run 55 Cu and 1 Sn.

Foundry red (82 Cu, 4.25 Sn) is threaded valves without handles, like Walworths, Jenkins, Lunkenheimer. The higher the P.S.I. on the valve the higher the Sn content usually. Fire extinguisher tops, gas pump nozzles, fire hose ends, and paper mill rolls, grave markers, and figure "8" pieces. No Brass backs, lined or otherwise, usually put in journals.

Red Brass (pinkish gray in color) (80 Cu 3.5 Sn) is non magnetic and turns gray to black with 2% Ag No3. Usually will have a few meters (80-3) without iron bottoms, electrical brass (82-1) sweat fittings (80-3), H stands (78 Cu 2.5 Sn), and hi grade valves, sleeves, impellers, etc. It is important to see by rough calculation if there is enough hi grade items to bring up the low grade items so we get an overall average of 80 Cu and 3.5% Sn. If not adjust the assay of the lot and give reasons for downgrade. Red brass turns are pink gray in color, non-magnetic, and have short slivery like texture, that is the turns usually are not long & curly. Turns usually run 1 to 3% lower on Cu than the solid it came from, due largely to larger surface area which allow more oil and dirt to build up. Plus hi Pb Lead turns will oxidize turning grayish faster.

Mix water meters (80-3) are usually all types from hi grade Herseys, Artics, Watch Dogs, to lower ones such as Badger, Trident, Spanners and Kents free of irony bottoms and no plastic tops.

Trident and Badgers are (78 Copper -2.5 Sn) but are free of irony bottoms. The irony bottoms usually drops the meter by 8 to 10% copper and anywhere from .50 to 1.25% tin. Because the meters drop so much and the high amount of irony, this is bought and used as refinery brass. The plastic top meters run around 60% copper and 1.50% to 2.00% Sn and should be priced accordingly. Some meters such as Kents & Spanner have a low assay of around 50 Cu and 0. to .5% Sn.

Semi-red or 81 metal is usually around 78-79 Cu and 2 to 2.5% Sn. Sprinkler heads, H-stands, outside water faucets, castings, acetylene valves, and some plumbing breakage. We have received a small amount of spatters and turns in these lots.

Admiralty brass tubes run (70 copper and 1 Sn) and is greenish yellow in color. These tubes come from heat exchangers and condenser nests. This is a trading item that mills will pay a premium for and usually will specify the length they want.

Cocks and Faucets (67 Cu & 1.5 Sn) Plumbing fixtures, H-stands, flex gas pipe, flush valves and drains. You will get die cast faucet housings, with red brass H-stands attached. Some of the H-stands are yellow brass fittings with copper tubing connecting the fittings. Sweat fittings with copper tubing connecting the fittings. Sweat fittings connected to copper tubing, red brass valves, and H-stands connected to galvanized pipe and fittings, drains, and even yellow brass items. Look to make sure you have enough tin in the lot for 1.50%; usually the copper is there 98% of the time.

Journals (63 Cu 4 Sn) are usually lined with a lead tin babbitt that has a high antimony (Sb) content and comes from railroad cars. Lined Journals are traded not used. If the babbitt has been sweated off, it upgrades the journal to 74 copper and 4.25 Sn and removes some of the antimony which is a bad element for us. "Brass Backs" are similar to journals and usually has a babbitt lining.

Radiators (65 Cu 2.5 Sn) without iron fins comes from automobiles. What to watch out for in these loads is the heater cores which runs 56 Copper 2.25 Sn, the iron sides running 5 to 18% iron. In rare cases that have the complete housing around the fan attached it can run 35 iron. We will also charge a \$.03 per pound to cut up oversized

pieces. Modine tubes (56 Copper and 2.53 Sn) comes from radiators. (Not buying one's with Fe housing > 8%). There is a new "Auto Rad with Iron code 507", that radiators with 15 to 20% Fe should be bought under.

Refinery brass (61-88% Cu) usually with no tin. Commutators 60%, Brushings with leads 80%, shredder scrap. In this category there is a bunch of sub-categories such as: Aluminum Bronze (80 Cu) yellow in color, slightly magnetic, and stays clear when a drop of 2% Ag No₃ is put on a filed surface. Comes in form of small propeller, gears, solids and turns.

Cartridge Brass (70-30) will show a bright yellow color, not dull like the leaded brass. Yellow in color on a fresh break. Is plyable meaning you can bend back and forth quite a few times before it breaks while the leaded brass breaks after a few times. Found in ammunition shells and parts, clips, lamp fixtures, turbine blades, electronic scrap, and Radiator Tanks.

Yellow Brass - (65 Cu- Balance Zinc) comes from radiator parts, lamp fixtures, ornamental brass, yellow castings, lead chains, eyelets, hinges, novelties, and has a yellow color in the break or cut and is non-magnetic. Manganese bronze (56 to 65 Cu) has a greenish yellow cast on some solids and turns. Is magnetic and will turn black when 2% Ag No₃ is

put on a clean filed surface. Comes in form of gears, large marine impellers, sleeves, and turns. In the refinery category, we have a maximum of 10 to 15% iron, if more, we will classify as a high grade CBM material. Pins on tape is not refinery brass because of the high combustible content, even though it will run 58 Cu and 1% Sn. There are always exceptions to any rule, and these variances are because of needs.

Skims - (30 to 60% Cu) sometimes contains tin. Consists of runs, spatters, skims, fines, dross, refractory, brick and sandstone. If the runs or metallic is yellow in color, there is a good chance no tin, also if there are aluminum metallic runs. Even if the runs, metallics are dark pinkish gray, it doesn't necessarily mean tin. Some times you can find indicators such as a partially cast valve, or red brass items that indicates they are making tin bearing items out of the metal.

For resale only. Slag - (15 to 35% Cu) is hard in texture similar to rocks. The glassier dark black slags, without much shot is lower, than the reddish, dull and full of shot pieces. You can drop a piece of slag and it is hard. It doesn't want to break whereas a skim or dross will break off easier.

Copper Bearing, Copper Irony Scrap - (15-60 Cu) only DAB & motor is the low grade hi irony items. door knobs, refer cut offs (35% Cu) armatures, fields, irony electronic scrap, motors, sweeps, small amounts of insulated wire, circuit boards, and telephone scrap. Some of the telephone and electronic scrap has precious metals and is a more favorable scrap if used the right way and if you are paid for precious metals when you sell it. Watch for sealed units in the motors lots they must be punctured and oil drained, or will explode in furnace.

Not using. Combustible (10-80 Cu) is material with over 20% combustible, items that burn such as insulation, rubber, paper, fibreboard and plastic. Insulated wire and cable runs 35 to 80% and must be free of cable ends, and FE attachments, baled or banded coils. One of the reasons we cannot accept shredder wire with cable ends and foreign material in it is that the chopper cannot handle it.

Pins on Tape are (58 Cu 1 to 1.5 Sn) if they are 1/2" to 3/4" longer than tape if cut even with tape they are quite a bit lower. Also look for magnetic ones which will drop the assay.

Pins on Cardboard (35 to 45% Cu) because of extra cardboard. Figure 8 wire which is self support cable is traded.

Not using must be priced to resell. Fines (10 to 90 Cu) and includes

everything from ashes to face powder, some grindings, containing tin. The reason lots are put in this category because of size, this is a real fine material similar to salt or sugar is size with some even smaller. Most of this material is exported or traded since it cannot be used because of EPA problems.

ITEMS NOT ACCETABLE AT THIS TIME FOR CHEMETCO'S USAGE

CUPRO NICKEL - ALL TYPES

MINNOX TURNS

LEAD/TIN TURNS FROM JOURNALS (HI SB)

REFER CUT OFFS

PLATING RACKS BURN'T OR INSULATED

SKIMS OVER 50% FINES

SEAL UNITS UNLESS PUNCHURED, DRAINED, AND LESS THAN 1/2 LOAD MOTOR

FINES LOW GRADE NO TIN

ABSOLUTLEY NO POWDER

AND NO TELEPHONE EXTENTION CORDS (FOIL ON NYLON TYPE,

NO FIGURE 8 OR INSULATED CU CLAD

COMMON CHEMICAL SYMBOLS USED IN THE METALS INDUSTRY

<u>ELEMENT</u>	<u>SYMBOL</u>	<u>ATOMIC NUMBER</u>	<u>ATOMIC WEIGHT</u>	<u>APPROX. MELTING POINT (F)</u>
Aluminum	AL	13	26.98	1215
Antimony	SB	51	121.76	1166
Beryllium	BE	4	9.01	2430
Bismuth	BI	83	209.00	480
Cadmium	CD	48	112.41	577
Carbon	C	6	12.01	--
Chromium	CR	24	52.01	2907
Cobalt	CO	27	58.94	2664
Copper	CU	29	63.54	1980
Gallium	GA	31	69.72	5355
Gold	AU	79	197.0	1945
Hafnium	HF	72	178.50	3060
Iridium	IR	77	192.2	4230
Iron	FE	26	55.85	2795
Lead	PB	82	207.21	621
Magnesium	MG	12	24.32	1170
Manganese	MN	25	54.94	2268
Mercury	HG	80	200.61	- -
Molybdenum	MO	42	95.95	4730
Nickel	NI	28	58.71	2600
Osmium	OS	76	190.2	4860
Palladium	PD	46	106.4	2826
Platinum	PT	78	195.09	3256
Rhenium	RE	75	186.22	5400
Rhodium	RH	45	102.91	3519
Selenium	SE	34	78.96	396
Silicon	SI	14	28.09	2556
Silver	AG	47	107.88	1761
Tantalum	TA	73	180.95	5425
Tin	SN	50	118.70	449
Titanium	TI	22	47.90	3208
Tungsten	W	74	183.86	6100
Vanadium	V	23	50.95	1710
Zinc	ZN	30	65.38	786

Iron, Cobalt and Nickel are the only common metals possessing considerable magnetism at room temperature.

CUPRO-NICKEL

Copper - 90%
Nickel - 9 - 11
Iron - 1 - 1.8

Color is reddish.

Very slightly magnetic. Wrought and cast.

Reacts in much the same way to nitric acid as the other cupro-nickels.

Note: Additional testing methods for checking Monel, Nickel-silver and Cupronickel. Since these alloys look alike the following information will help you to differentiate between these alloys.

1. Cupronickel will scorch when applied to the grinding wheel with any force. Do not over heat on the wheel.
2. To check Monel against Nickel Silver apply one drop of Braspot. The Monel will remain clear while the Nickel Silver will turn black rapidly.
3. To check cupro-nickel against nickel-silver apply one drop of nitric acid, quickly wash off the drop and observe. Nickel-silver will develop a copper or pink color on the surface while cupro-nickel will not.
4. To a clean surface add one drop of nitric acid and one drop of hydrochloric acid, then drop one or two drops of dimethylgloxime. The redder the spot the more nickel is contained.

NAVAL BRASS

Copper - 60%
Tin - .75
Zinc - 39.25

Dark yellow in color.

Aircraft hardware, bolts, nuts, rivets, valve stems, marine hardware, piston rods, propeller shafts, plates.

Testing method: Dissolve a small amount of drillings in 1/2 nitr. acid and 1/2 water, will show a small amount of tin.

Also called Tobin Bronze.

GILDING METAL

Copper - 90 - 95%
Zinc - 5 - 10%

Color is a pinkish bronze color.

Generally associated with bullet jackets, it is also found in medals, coinage, tokens, jewelry, marine hardware, artillery pr. caps, rivets and screws.

ADMIRALITY CONDENSER TUBING

Copper - 70%
Tin - 1
Zinc - Balance

Greenish yellow in color.

Made into condenser, evaporator and heat exchange tubing.

For mill purposes and a premium price for this material, it must be free of corrosion, sediment, arsenic and bismuth. Mills also generally specify the tube length as part of their specifications

NAVY "M" METAL

Copper	-	86-89%
Tin	-	5 - 6.5
Lead	-	1 - 2
Zinc	-	3 - 5

The color is reddish, somewhat lighter than "G" metal when struck with a file. Found as impellers, steam and valve bodies, usually of 200# pressure and up, oil pumps, some gears, heavy duty bearings, pipe flanges, backings for babbitt lined bearings. One drop of Braspot turns light blue immediately then slowly darkens.

LEADED TIN BRONZE

Copper	-	87%
Tin	-	8
Lead	-	1
Zinc	-	4

Will show a reddish bronze color when nicked with a file. Heavy duty structural bronze, nuts, bolts, heavy duty bearings, high pressure bushings and bearings, pump pistons, valves; some electrical materials, auto bushings. One drop of Braspot will turn gray a little faster than the gun metal. Note: Since ingot makers normally buy the above items on a Copper-Tin schedule, allowing 1% maximum Lead, the above three items can be lumped together and sold as one item.

YELLOW BRASS CLIPS

Also called 70/30 brass or cartridge brass.

Copper	-	70%
Zinc	-	30

A fresh break will show a bright yellow color. To distinguish between the 70/30 brass and leaded brass clips, bend the material back and forth. The 70/30 brass will bend many times before breaking while the leaded brass will break after one or two bends. Also, a fresh break will show a bright yellow color on the 70/30 brass while the leaded brass will show a dull yellow color.

Generally found in the form of new clippings, lamp fixtures, ammunition components, 70/30 brass clips are always wrought.

DAIRY METAL

Copper	-	63%
Tin	-	2-1/2 - 3-1/2
Lead	-	4 - 5
Nickel	-	18 - 20
Zinc	-	8

Silvery white color.

Generally slightly magnetic, therefore, it is easily confused with Monel. Usually found in the form of a casting.

Nitric acid will turn a bluish green. Braspot will turn black immediately, whereas, Braspot will remain clear on Monel.

SILICON BRONZE

Copper	-	75 - 95%
Silicon	-	1 - 5%
Zinc	-	5 - 16%

Reddish color.

Used for anchor screws, cable clamps, U-bolts, kettles, electrical conduits.

COMMERCIAL BRONZE

Copper	-	80 - 90%
Zinc	-	10-20

Commonly called 80/20 or 85/15 or 90/10 brass. Also called red brass pipe as 85/15.

A fresh break will show a reddish color. This material can only be identified by the color.

Found in tubing, pipe, sheet or clips.

Antimony

Antimony is a white, hard, brittle metal of crystalline structure, a poor conductor of electricity and is little affected by air. The alloys of Antimony expand upon cooling and so are used in casting type metals and babbitts.

Since Antimony is an alloying element it is rarely seen as scrap.

The chief ore is Stibnite, the trisulfide, which is imported from China and Japan, also found in the western United States.

Solder

An alloy of Tin and Lead, sometimes containing small amounts of Cadmium, Bismuth and Silver. This alloy comes in many mixtures. It is used for joining metal surfaces together.

As a general rule, the more yellow in color and the lighter in weight, the more Tin is contained. However, to be certain of the alloy contents requires a chemical analysis by a testing laboratory. Also, for this type of testing a very close analysis can be obtained with the Henry Troemner balance.

TESTING METHODS

To differentiate between solder and babbitt, cut from the surface edge with a sharp knife. Solder will cut hard but will bend back and forth many times before breaking, while babbitt which contains Antimony, will break off immediately when cut.

Babbitt

Named for the scientist Isaac Babbitt, this alloy of Tin, Lead, Antimony and Copper is used mainly for lining the bearings of crank axles and similar moving parts. Babbitt metal reduces the friction of moving and sliding parts and helps keep the bearings from becoming too hot.

Babbitts which range from 90% Tin, balance Copper and Antimony, to 65% Tin, 15% Antimony, 2% Copper, 18% Lead are usually called "High Speed Babbitts". "Medium" and "Common" babbitts are those containing less Tin and more Lead, in many combinations.

Lead

Lead is a dark gray metal, it is non-magnetic, non-sparking. It will not react to nitric acid. Lead is a heavy metal, has a very low melting point and is very soft and malleable.

Two types of Lead are in common use:

1. Soft Lead: consisting of caulking Lead, sheet Lead, water and waste pipe, power cable strippings.
2. Hard Lead: consisting of Lead castings, battery lugs, lamp bases, wheel weights, telephone cable strippings. Hard Lead will usually contain small percentages of Antimony and Tin.

Storage battery plates are sold as a separate item.

One of the largest sources of scrap Lead results from the reclamation of automobile and industrial batteries. It is estimated that 80% of the Lead used in batteries is recovered by industry after a period of two to four years. Lead is also widely used as a base for type metals, solders and babbitt metals.

TESTING METHODS

One of the best tools for checking Lead base alloys is a sharp pocket knife.

1. Soft Lead: Cuts very easily with a knife. It will bend back and forth many times before breaking.
2. Hard Lead: Will break off when cut with a knife.

It should be noted that much Lead pipe is being replaced by plastic which eliminates the need for solder. In addition, much babbitt is being replaced by plastics.

Type Metal

Type metals: Type casting and type setting devices are of two basic kinds. A monotype machine casts and sets letters, one at a time. The other machine called a Linotype casts and sets type in a slug or solid bar of metal the length of a line of print. Electrotypes consist of a type metal plate with a thin copper layer, this is the lowest price of the type metal scrap. Stereotype is a solid plate of type metal. Sometimes flat and sometimes in the form of half cylinders (rotary presses for newspapers).

Do not mix the various types of type metals.

Type metals are being used less and less by the printing industry. Printers are discarding this method for the faster and more economical Lithograph methods available. In this method the printer photographs the copy where it is transferred to a thin metal plate (Aluminum or Zinc). Many large newspapers have switched to this method.

<u>METHOD</u>	<u>NOMINAL COMPOSITION</u>
Linotype Metal	Pb-Bal Sn-3-1/2 - 4% Sb-12%
Monotype Metal Type 1	Pb-Bal Sn-6% Sb-16%
Monotype Metal Type 2	Pb-Bal Sn-7% Sb-17%
Monotype Metal Type 3	Pb-Bal Sn-9% Sb-19%
Foundry Type	Pb-Bal Sn-10% Sb-20%
Electrotype	Pb-Bal Sn-3% Sb-3%

COMMONWEALTH ALUMINUM
SCRAP & RECEIVING SPECIFICATIONS
1987

REVISED 9/14/87

MATERIAL SPECIFICATIONS

1. Segregated New Aluminum Alloy Clippings and Solids

Shall consist of new, clean, uncoated and unpainted aluminum scrap of one specified aluminum alloy only. Minimum .015 gauge. Free of punchings less than 1" in size. To be free of fin stock, foil, litho, hair wire, screen or sealed containers. Material must be dry and free of iron, stainless, plastic, dirt or any other foreign contamination. Oil, grease or cutting solvents not to exceed a total of 1%. New can or container stock subject to arrangement between buyer and seller.

2. Clean New Mixed Low Copper Aluminum Clips and Solids

Shall consist of new, clean, uncoated and unpainted low copper aluminum scrap of two or more alloys. Minimum .015 gauge. Free of punchings less than 1" in size. To be free of 2000, 4000, 7000, 8000 or high magnesium alloys over 2.8% Mg. Free of fin stock, foil, litho, can or container stock, condensers, radiators, heat exchangers, wire, screen, toothpaste tubes or sealed containers. Material must be dry and free from iron, stainless, plastic, dirt or any other foreign contamination. Oil, grease or cutting solvents not to exceed a total of 1%. No slitter trim.

3A. Painted Aluminum Siding (New Production Only)

Clean new production low copper alloy aluminum siding scrap painted one side. Must be free of iron, dirt, corrosion, fiber backing, plastic or any other foreign contaminations. No coils, slitter trim or stacked sheet.

3B. Painted Aluminum Siding

Shall consist of clean low copper alloy aluminum siding scrap painted on one or two sides. Must be free of venetian blinds, vinyl or plastic coating, iron, dirt, corrosion, fiber backboard, screens, insulation, radiators, cans, signs, or any other foreign contamination. No coils, slitter trim, or stacked sheet.

4. **Commonwealth Quality Old Sheet Aluminum**

Shall consist of bare or painted sheet aluminum of two or more alloys. Minimum .015 gauge. Free of punchings less than 1" in size. To be free of 2000, 4000, 7000, 8000 and high magnesium alloys over 2.8% Mg. Must be free of foil, venetian blinds, castings, litho, bumpers, hair wire, radiators, screen wire, food or beverage containers, pie plates, fin stock and sealed containers. Material must be dry and free from iron, stainless steel, plastic, dirt, teflon coatings, or any other foreign substances. Oil and grease are not to total more than 1%.

5. **E.C. Aluminum Nodules (choppings)**

Shall consist of clean E. C. Aluminum, chopped or shredded, not to exceed 1 1/2" length, free of screening, hair wire, iron, fines, insulations, copper, and other foreign contamination. All boxed material must have a plastic liner. All boxes must have a minimum of two bands horizontally around the box (preferably one 12" from the top, the other 12" from the bottom.) All boxes must be strapped to skids with a minimum of two bands. Material on dump trucks is acceptable. All chops must be free of minus 20 mesh material. All E.C. must have minimum purity of 99.45%. Material mixed with 6000 series or other alloy chopped reinforcement strands will not be accepted.

6. **R S I Aluminum**

Shall consist of aluminum scrap which has been sweated or melted into a form or shape such as a ingot, sow, pig or slab. Individual unit weight not to exceed 1200 lbs. To be free from internal cavities, corrosion, drosses or any other foreign materials. Size to be determined by purchaser. Sold subject to sample or analysis, by heat, and must meet Commonwealth Aluminum maximum chemical analysis for alloy purchased. All shipments must be accompanied by the company's certified analysis and sample discs for heats, to be clearly marked and segregated when loaded.

7. **U B C**

Shall consist of clean, old used aluminum cans, decorated or bare. Material must be free of steel, lead, foils, plastic, glass, organics or other contamination. Any and all aluminum items other than used beverage cans are not acceptable. Material in excess of 2% moisture is subject to downgrade or rejection. Scrap may be baled securely or briquetted and banded to skids. Briquette size is not to exceed 24 x 24 x 36 inches.

8. Class I Can Scrap

Material shall consist of clean undecorated cans or cups, skeleton, slitter, or trim scrap. 3004 or 3104 only. Scrap containing in excess of 2% residual lubricant is unacceptable. Scrap cannot be lacquered, painted, coated, or contaminated with gaskets and sealants. Material must be briquetted to Commonwealth Aluminum specifications, and banded securely to skids. Typical briquette dimensions are 12 x 14 x 18 inches. Sheet scrap and coil are subject to inquiry. Bales are not acceptable.

9. Class II Can Scrap

Material shall consist of clean, undecorated lid stock, skeleton or trim scrap. 5182 alloy only. Scrap containing in excess of 2% residual lubricant is unacceptable. Scrap can be lacquered or bare, but must not be painted, coated or contaminated with gaskets and sealants. Material must be briquetted to Commonwealth Aluminum specifications and banded securely to skids. Typical briquette dimensions are 12 x 14 x 18". Sheet scrap and coil are subject to inquiry. Bales are not acceptable.

10. Class III Can Scrap

Material shall consist of spoiled clean and decorated cans free of residual lubricants and new can scrap. Scrap is not to contain 5000 series lids and must be 3004 or 3104 alloy only. Sheet scrap and coil are subject to inquiry. Material must be briquetted to Commonwealth Aluminum specifications and banded securely to skids. Typical briquette dimensions are 12 x 14 x 18". Bales are not acceptable.

GENERAL MATERIAL SPECIFICATIONS

The minimum acceptable gauge for all material excluding can scrap is .015. The following items are subject to immediate rejection - tank scrap with chemical residue, aluminum lithium alloys, aluminum composites, aluminum powder metallurgy materials, clad materials, laminated materials, and any aluminum coated, treated or contaminated with potentially hazardous chemicals or elements.

SHIPPING SPECIFICATIONS

1. Receiving Hours

The hours for receiving purchased scrap will be from 8:30 a.m. to 3:00 p.m., Monday through Friday, except Holidays. Any exception from this policy must come through the receiving office. All shipments must be scheduled for delivery through our Metal Control Department, Ext-404. Any shipment arriving without prior notification will be subject to detention and/or rejection at the shipper's expense.

2. Shipping Requirements

All trucks, piggybacks or rail cars carrying purchased scrap to our plant must guard against water reaching the metal. All open top trucks must be tarped when arriving at our dock. Tarps will be free from any holes or leaks. Also, all trucks must not have holes or leaks in the sides or floor. Any load of scrap coming in wet can result in immediate rejection.

Rail cars and piggybacks should be adequately bulkheaded to prevent load shifting and/or spillage.

Shipper should assure that any truck or boxcar being loaded is clean, in good shape, and free of holes which could jeopardize unloading operations or result in cargo spillage.

Trucks bringing in loose scrap must be loaded on a dump truck and will be accepted only with prior approval and scheduled in advance through the Metal Control Department. Dump loads arriving without prior approval can result in immediate rejection.

3. Weights

All trucks carrying purchased scrap must weigh in and out on Recycle truck scale only. The Scrap Receiving Department will be responsible for weighing and sampling all incoming scrap.

Any weight that differs less than 0.5% from our weight will be paid on the vendor's weight. Any weight difference greater than the 0.5% will be paid on Commonwealth Aluminum's weight. The buyer will be notified so as to contact the vendor of the difference.

PACKAGING GUIDELINES

- . SHIP STRAIGHT LOADS OF SCRAP WHENEVER POSSIBLE.
- . THE FOLLOWING RULES APPLY TO SEGREGATION OF MATERIAL.
 - A. CLEARLY SEPARATE DISTINCT TYPES OF MATERIAL.
 - B. LOAD THE HEAVIEST LOT IN THE NOSE OF THE TRAILER.
 - C. THERE SHOULD BE NO MORE THAN 5 LOTS PER TRAILER.
 - D. SMALL LOTS OF MILL ITEMS ARE TO BE LOADED ON THE BACK OF THE TRAILER.
 - E. SCRAP SHOULD NOT BE PACKAGED IN BARRELS OR HEAVY STEEL PANS.

DOUBLE STACKING OF MILL ITEMS IS NOT ALLOWED.

TURNINGS SHOULD NOT BE LOADED IN THE FRONT OF TRAILERS AND IT WILL HELP IF THEY ARE LOADED ON A SHEET OF PLASTIC.

INDIVIDUAL PIECES OF SCRAP SHOULD BE:

- A. NO MORE THAN 800 POUNDS.
- B. NO MORE THAN 3 FEET IN ANY DIMENSION.

A DETAILED PACKING LIST SHOULD BE SENT WITH EACH LOAD AND SHOULD INCLUDE THE FOLLOWING:

- A. A LIST OF INDIVIDUAL LOTS.
- B. ADVISED TARE WEIGHTS FOR EACH LOT.
- C. A BOX AND PALLET COUNT.
- D. A LOAD DIAGRAM.
- E. CONTRACT NUMBER.

***** PLEASE USE COMMON SENSE WHEN LOADING *****

WAREHOUSE DELIVERY SPECIFICATIONS

TO AVOID REJECTIONS AND ASSURE PROMPT UNLOADING ~~AND PROMPT~~, PLEASE COMPLY WITH THE FOLLOWING:

- TAG ALL BOXES, BARRELS, OR BALES WITH WEIGHT AND DESCRIPTION.
- NO LOOSE MATERIAL, NO ASHES, SWEEPS OR ANY FINE MATERIAL.
- INSULATED WIRE MUST BE FREE OF ALL CONNECTORS, ASBESTOS, STEEL OR JELLY FILLED WIRE.
- SIZE MAXIMUM IS 3 FEET ON ANY SOLID PIECE, NO INDIVIDUAL PIECE TO EXCEED 800 LBS.
- WEIGHT MINIMUMS ARE 1,000 LBS ON EACH ITEM AND 5,000 LBS PER TRUCKLOAD.
- DELIVERY APPOINTMENTS MUST BE MADE FOR EVERY LOAD WITH THE WAREHOUSE MANAGER.
- BOXES, BARRELS AND BALES WILL BE DUMPED FOR INSPECTION.

PACKAGING REQUIREMENTS

1. A complete manifest and packing list should accompany each shipment. This should clearly indicate the order number, items shipped, number and type of packages of each commodity, as well as the gross, tare and net weights of each item. This detailed information should be put into an envelope and attached to the inside wall of the truck or rail car. In addition, this information must be telexed or telephoned in to Commonwealth Aluminum Scrap Receiving sufficiently in advance of all piggyback, truck and rail deliveries. Commonwealth Aluminum will not be responsible for detention charges incurred when this information is not given prior to delivery. Upon arrival truck drivers must present Scrap Receiving Department the above information before being unloaded.

2. Limit three items per shipping conveyance. Different lots in any car or truck should always be properly segregated to avoid commingling and should be tagged or clearly marked to assure appropriate identification and proper unloading.

3. Packed material should always be in sound bales, securely strapped or banded with no breaks, or in containers that should be securely bulkheaded within conveyance to prevent breakage of packages during transit.

No stainless, steel, or cardboard drums will be accepted.

All material should be loaded for forklift unloading. Any rail car or truck that calls for hand unloading will be subject to rejection or financial adjustment, subject to mutual agreement between buyer and seller.

All boxes should be of heavy cardboard. No boxes that are torn, wet, or soaked with oil will be accepted without a price adjustment or rejection. All boxes must be securely banded to skids. Boxed material should have one foot minimum clearance between boxes and top of trailer.

4. The maximum weight for any bale will be 2500 pounds. Maximum bale size will be 30" x 30" x 72". No burlap or plastic wrapping.
5. Scrap briquetted on skids should be stacked no higher than five feet. Briquettes on skids or coils will weigh no more than 6000 pounds. Maximum briquette size will be 16" x 16" x 24". Briquettes must be banded securely to skids.
6. Any flat sheet, plate, pipe, etc. must be banded to skids and should not exceed six feet in length.

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

INSULATED COPPER WIRE

Material to be free of connector, shipboard cable, or any other iron jacketed wire.

No figure 8 wire - No asbestes - No jelly-filled.

Material to be baled or boxed. No loose material.

Greasy wire must be cut into lengths of 5 feet and under. (Keep in mind 2¢/lb extra handling).

Coil material must be good hand tied coils.

M - 1	50% +	Good clean wire
M - 2	45-50%	Wire with connectors
M - 3	45-50%	Wire w/sockets, clips & tape
M - 4	40% -	Junk wire w/fuse boxes and other trash



WOLVERINE TUBE, INC.

**PURCHASING AND
RECEIVING SPECIFICATION**

NUMBER 215

DATED 5/27/87

SUPERSEDES 4/22/87

ISSUED BY T. B. ARRINGTON

PAGE 1 OF 4

SUBJECT: **COPPER SCRAP TO BE USED IN CASTING COPPER & COPPER ALLOYS**

1. SCOPE

This specification covers copper scrap for use in casting. This specification is intended to basically match the standard industry specifications for #1 copper scrap as specified in:

- a. NARI Circular NF-80, Standard Classifications for Nonferrous Scrap Metals July 1, 1980, by the National Association for Recycling Industries, Inc.
- b. Institute of Scrap Iron and Steel, Inc. Handbook November 1982 by the Institute of Scrap Iron and Steel, Inc.

***2. CLASSIFICATION OF SCRAP**

Class 1 - Shall consist of No. 1 bare, untinned, uncoated, unalloyed copper wire and cable not smaller than No. 16 AWS wire gauge (.051" in diameter). Hair wire and stranded wire where the size of the individual strands is smaller than No. 16 AWS wire gauge is not acceptable. Green copper wire is acceptable only if less than 20% of the shipment is so coated. All wire must be briquetted and be free of burnt wire which is brittle (Industry Code - Barley and Berry). Wire must not contain charred insulation.

Class 2 - Shall consist of clean, unalloyed, uncoated copper tubing. Material shall not be heavily oxidized or corroded; free of tubing which is brittle. Tubing is not to be briquetted and shall be supplied loose in boxes. (Industry Code Candy)

Class 3 - Shall consist of clean, unalloyed, uncoated copper clippings, punchings, buss bars, commutator segments, plate or heavy flat wire. Material shall be supplied loose in boxes.

***REVISIONS**



WOLVERINE TUBE, INC.

**PURCHASING AND
RECEIVING SPECIFICATION**

NUMBER 215
DATED 5/27/87
SUPERSEDES 4/22/87
ISSUED BY T. B. ARRINGTON
PAGE 2 OF 4

SUBJECT: **COPPER SCRAP TO BE USED IN CASTING COPPER & COPPER ALLOYS**

2. CLASSIFICATION OF SCRAP
Class 3 (continued)

None of the following is acceptable.

- a. Ingots other than those produced by a major copper supplier
- b. Alloyed castings
- c. Copper used in bearing applications
- d. Any machined copper or copper alloy parts including welding tips.
(Industry Code Candy)
- e. Brittle copper
- f. Material with soldered joints and/or alloyed fittings.

2.1 None of the three classes shall be mixed within the same container or on the same pallet (if briquetted), but may be included within the same shipment.

2.2 It is expected that the copper content of the copper scrap be 99.9% minimum and concentrations of the following elements detrimental to copper tubing manufacturing be a maximum of:

Sulfur	.008%
Selenium	.0025%
Bismuth	.003%
Tin, Lead, Iron, Zinc, and Aluminum	.025% each

***3. PACKAGING**

- a. Briquettes shall not exceed 8" X 9" X 15".
- b. Loose scrap must not exceed 12" in length and 8" in diameter.
- c. All cardboard boxes must have two steel belly bands to prevent the box from falling apart during shipment. Cardboard boxes cannot be filled with copper higher than 4' and 5" of freeboard must be left.

***REVISIONS**

**SUBJECT: COPPER SCRAP TO BE USED IN CASTING COPPER & COPPER
ALLOYS**

NUMBER	215
DATED	5/27/87
SUPERSEDES	4/22/87
ISSUED BY	T. B. ARRINGTON
PAGE	3 OF 4

3. PACKAGING (continued)

- d. All rolls of copper cable must be palletized and tied together with copper wire.
- e. Shawnee Special Instructions:
 - 1. Bales larger than 2' X 3' X 5' cannot be charged into the melting furnace and will not be accepted.
 - 2. The maximum weight of any pallet or box is 4,500 pounds.
 - 3. No barrels will be accepted.
 - 4. Baled tubing is acceptable.
- f. Decatur Special Instructions:
 - 1. Bales larger than 30" X 36" X 48" cannot be charged into the melting furnace, and will not be accepted.
 - 2. The maximum weight of any pallet or box shall not exceed 4500 pounds.
- e. Needles and can stock shall not be accepted.

***4. GENERAL**

All purchased scrap shall be checked magnetically for ferrous contamination by the supplier. All Material must be free from embrittlement as determined by a Closed Bend Test (Procedure C of ASTM B577).

***5. REJECTION**

As agreed upon between purchaser and seller, the necessary handling costs required to sort material which, after unloading at our plant, is found not to comply with this specification, will be charged back to the seller. All such rejected material, after sorting, shall be returned for full credit plus the additional transportation charges. A pallet of briquetted

***REVISIONS**

W. I. WOLVERINE TUBE, INC. PURCHASING AND
RECEIVING SPECIFICATION

NUMBER 215
DATED 5/27/87
SUPERSEDES 4/22/87
ISSUED BY T. B. ARRINGTON
PAGE 4 OF 4

SUBJECT: COPPER SCRAP TO BE USED IN CASTING COPPER & COPPER
ALLOYS

5. REJECTION (continued)

material or a drum of loose scrap will be considered as a whole for the purpose of rejection.

All material under this specification is subject to inspection at destination.

6. ACCEPTANCE ON DEVIATION

Material not conforming to this specification may be used only when a deviation request is approved by the appropriate Quality Assurance Department Representative and the Converting Department foreman.

CORPORATE QUALITY ASSURANCE

It

*Item 7 Deleted

PREFACE

The standard specifications included in this Circular are intended to assist members in the buying and selling of their materials and products.

These specifications are derived from many sectors of the metals industry and are constructed to represent the quality or composition of the materials bought and sold in the industry. The specifications are internationally accepted, and are used throughout the world in metals trading.

Parties to a transaction may specify particular variations or additions to these specifications, as are suited for their specific transactions and for their individual convenience. Any deviation from the standard specifications, however, should be mutually agreed to, and so stipulated in writing, by the parties to the transactions.

NARI maintains an Arbitration Service as a means of enabling members to settle differences between themselves, or between one of them and a non-member.

In addition, the "Guidelines for Metals Transactions" contain supplementary information which will aid members in completing their business transactions. It is recommended that these Guidelines be reviewed and that members employ them, in conjunction with the actual specifications, in the conduct of their business.

CONTENTS

	Page
Standard Specifications for Nonferrous Scrap Metals	5
A. Terms — "Apple"	5
B. Metals Specifications	6
Guidelines for Metals Transactions	13
A. Guidelines for Contracts	14
B. Packing, Weighing, Shipping and Receiving	17
C. Transportation Guide	21
D. Rejections — Downgrades — Claims	22
E. NARI Arbitration Service	24
Identification Check List for Precious Metals	25
Transportation Code	26

STANDARD SPECIFICATIONS FOR NONFERROUS SCRAP METALS

Note: When the individual grade specifications in this Circular, denoted by the various code words, are used, an agreement between parties is also bound by the terms of "Apple" as it appears below, unless the terms and conditions of a specific contract provide otherwise, in which case the specific contractual provisions shall govern.

CODE WORD

APPLE 1. — TERMS

- a. Delivery of more or less of the specified quantity up to 3 per cent is permissible.
- b. A ton shall be understood to be 2000 pounds, unless otherwise specified.
- c. If any portion of the goods covered by a contract are unshipped or undelivered within the time specified in a contract, then that portion is subject to cancellation by the buyer, and/or the buyer has the right to hold the seller responsible for substantiated damages.

If, because of embargo and/or other conditions of force majeure, a delivery or shipment cannot be made by the time specified, the contract shall remain valid and shall be completed promptly upon lifting of the embargo, and/or conditions of force majeure and the terms of said contract shall not be changed.

- d. If for any portion of a contract the buyer fails in a timely manner to open a Letter of Credit, and/or fails to provide proper conveyance and/or shipping instructions as specified in the contract, then that portion is subject to cancellation by the seller and/or the seller has the right to hold the buyer responsible for substantiated damages.

If, because of embargo and/or other conditions of force majeure, a delivery or shipment cannot be made by the time specified, the contract shall remain valid and shall be completed promptly upon lifting of the embargo, and/or conditions of force majeure and the terms of said contract shall not be changed.

- e. If a significant weight or quality difference is apparent, the seller should be notified promptly and, if requested, another weight or quality determination should be taken. Seller and/or buyer should be given the opportunity to appoint an independent surveyor or a representative to verify weights and/or quality.

For purposes of this section, the meaning of the word "significant" shall be determined by agreement between buyer and seller, depending on the commodities and their values.

- f. If it is mutually determined that goods delivered do not conform to the description specified in the contract, then the shipment is subject to rejection or downgrade.

Disposition of, replacement of, and/or financial adjustment for rejected material shall be subject to mutual agreement between buyer and seller. Seller is responsible for freight costs.

Buyer is expected, however, to exert every effort to limit rejections only to that portion of the shipment which is unsortable and to return the rejected portion promptly upon request, if government regulations permit.

CODE WORD ITEM

Barley 2.—No. 1 COPPER WIRE

Shall consist of No. 1 bare, uncoated, unalloyed copper wire, not smaller than No. 16 B & S wire gauge. Green copper wire and hydraulically compacted material to be subject to agreement between buyer and seller.

Berry 3.—No. 1 COPPER WIRE

Shall consist of clean, untinned, uncoated, unalloyed copper wire and cable, not smaller than No. 16 B & S wire gauge, free of burnt wire which is brittle. Hydraulically briquetted copper subject to agreement.

Birch 4.—No. 2 COPPER WIRE

Shall consist of miscellaneous, unalloyed copper wire having a nominal 96% copper content (minimum 94%) as determined by electrolytic assay. Should be free of the following: Excessively leaded, tinned, soldered copper wire; brass and bronze wire; excessive oil content, iron, and non-metallics; copper wire from burning, containing insulation; hair wire; burnt wire which is brittle; and should be reasonably free of ash. Hydraulically briquetted copper subject to agreement.

Candy 5.—No. 1 HEAVY COPPER

Shall consist of clean, unalloyed, uncoated copper clippings, punchings, bus bars, commutator segments, and wire not less than 1/16 of an inch thick, free of burnt wire which is brittle; but may include clean copper tubing. Hydraulically briquetted copper subject to agreement.

Cliff 6.—No. 2 COPPER

Shall consist of miscellaneous, unalloyed copper scrap having a nominal 96% copper content (minimum 94%) as determined by electrolytic assay. Should be free of the following: Excessively leaded, tinned, soldered copper scrap; brasses and bronzes; excessive oil content, iron and non-metallics; copper tubing with other than copper connections or with sediment; copper wire from burning, containing insulation; hair wire; burnt wire which is brittle; and should be reasonably free of ash. Hydraulically briquetted copper subject to agreement.

Clove 7.—No. 1 COPPER WIRE NODULES

Shall consist of No. 1 bare, uncoated, unalloyed copper wire scrap nodules, chopped or shredded, free of tin, lead, zinc, aluminum, iron, other metallic impurities, insulation, and other foreign contamination. Minimum copper 99%. Gauge smaller than No. 16 B & S wire and hydraulically compacted material subject to agreement between buyer and seller.

Cobra 8.—No. 2 COPPER WIRE NODULES

Shall consist of No. 2 unalloyed copper wire scrap nodules, chopped or shredded, minimum 97% copper. Maximum metal impurities not to exceed .50% aluminum and 1% each of other metals or insulation. Hydraulically compacted material subject to agreement between buyer and seller.

Cocoa 9.—COPPER WIRE NODULES

Shall consist of unalloyed copper wire scrap nodules, chopped or shredded, minimum 99% copper. Shall be free of excessive insulation and other non-metallics. Maximum metal impurities as follows:

Aluminum	—	.05%
Tin	—	.25%
Nickel	—	.05%
Antimony	—	.01%
Iron	—	.05%

Hydraulically compacted material subject to agreement between buyer and seller.

CODE WORD ITEM

Dream 10.—LIGHT COPPER

Shall consist of miscellaneous, unalloyed copper scrap having a nominal 92% copper content (minimum 88%) as determined by electrolytic assay and shall consist of sheet copper, gutters, downspouts, kettles, boilers, and similar scrap. Should be free of the following: Burnt hair wire; copper clad; plating racks; grindings; copper wire from burning, containing insulation; radiators; fire extinguishers; refrigerator units; electrotpe shells; screening; excessively leaded, tinned, soldered scrap; brasses and bronzes; excessive oil, iron and non-metallics; and should be reasonably free of ash. Hydraulically briquetted copper subject to agreement. Any items excluded in this grade are also excluded in the higher grades above.

Drink 11.—REFINERY BRASS

Shall contain a minimum of 61.3% copper and maximum 5% iron and to consist of brass and bronze solids and turnings, and alloyed and contaminated copper scrap. Shall be free of insulated wire, grindings, electrotpe shells and non-metallics. Hydraulically briquetted material subject to agreement.

Drove 12.—COPPER-BEARING SCRAP

Shall consist of miscellaneous copper-containing skimmings, grindings, ashes, iron brass and copper, residues and slags. Free of insulated wires; copper chlorides; unprepared tangled material; large motors; pyrophoric material; asbestos brake linings; furnace bottoms; high lead materials; graphite crucibles; and noxious and explosive materials. Fine powdered material by agreement. Hydraulically briquetted material subject to agreement.

Druid 13.—INSULATED COPPER WIRE SCRAP

Shall consist of copper wire scrap with various types of insulation. To be sold on a sample or recovery basis, subject to agreement between buyer and seller.

Ebony 14.—COMPOSITION OR RED BRASS

Shall consist of red brass scrap, valves, machinery bearings and other machinery parts, including miscellaneous castings made of copper, tin, zinc, and/or lead. Should be free of semi-red brass castings (78% to 81% copper); railroad car boxes and other similar high-lead alloys; cocks and faucets; closed water meters; gates; pot pieces; ingots and burned brass; aluminum, silicon, and manganese bronzes; iron and non-metallics. No piece to measure more than 12" over any one part or weigh over 100 lbs.

Enerv 15.—RED BRASS COMPOSITION TURNINGS

Shall consist of turnings from red brass composition material and should be sold subject to sample or analysis.

Eider 16.—GENUINE BABBITT-LINED BRASS BUSHINGS

Shall consist of red brass bushings and bearings from automobiles and other machinery, shall contain not less than 12% high tin base babbitt, and shall be free of iron-backed bearings.

Eland 17.—HIGH GRADE — LOW LEAD BRONZE SOLIDS

It is recommended these materials be sold by analysis.

Elbow 18.—BRONZE PAPER MILL WIRE CLOTH

Shall consist of clean genuine Fourdrinier wire cloth and screen having a minimum copper content of 87%, minimum tin content of 3%, and a maximum lead content of 1%, free of stainless steel and Monel metal stranding.

Ellas 19.—HIGH LEAD BRONZE SOLIDS AND BORINGS

It is recommended that these materials be sold on sample or analysis.

CODE WORD ITEM

Engel 20.—MACHINERY OR HARD BRASS SOLIDS

Shall have a copper content of not less than 75%, a tin content of not less than 6%, and a lead content of not less than 6%—nor more than 11%, and total impurities, exclusive of zinc, antimony, and nickel of not more than 0.75%; the antimony content not to exceed 0.50%. Shall be free of lined and unlined standard red car boxes.

Erin 21.—MACHINERY OR HARD BRASS BORINGS

Shall have a copper content of not less than 75%, a tin content of not less than 6%, and a lead content of not less than 6%—nor more than 11%, and the total impurities, exclusive of zinc, antimony, and nickel of not more than 0.75%; the antimony content not to exceed 0.50%.

Fence 22.—UNLINED STANDARD RED CAR BOXES
(CLEAN JOURNALS)

Shall consist of standard unlined and/or sweated railroad boxes and unlined and/or sweated car journal bearings, free of yellow boxes and iron-backed boxes.

Ferry 23.—LINED STANDARD RED CAR BOXES
(LINED JOURNALS)

Shall consist of standard babbitt-lined railroad boxes and/or babbitt-lined car journal bearings, free of yellow boxes and iron-backed boxes.

Grape 24.—COCKS AND FAUCETS

Shall consist of mixed clean red and yellow brass, including chrome or nickel-plated, free of gas cocks, beer faucets, and aluminum and zinc base die cast material, and to contain a minimum of 35% semi-red.

Greet 25.—MIXED BRASS SCREENS

To consist of clean mixed-copper, brass and bronze screens, and to be free of excessively dirty and painted material.

Honey 26.—YELLOW BRASS SCRAP

Shall consist of brass castings, rolled brass, rod brass, tubing and miscellaneous yellow brasses, including plated brass. Must be free of manganese-bronze, aluminum-bronze, unsweated radiators or radiator parts, iron, excessively dirty and corroded materials.

Ivory 27.—YELLOW BRASS CASTINGS

Shall consist of yellow brass castings in crucible shape, no piece to measure more than 12 inches over any one part; and shall be free of brass forgings, silicon bronze, aluminum bronze and manganese bronze, and not to contain more than 15% nickel plated material.

Knife 28.—OLD ROLLED BRASS

Shall consist of old pieces of yellow sheet brass and yellow light tubing brass, free from solder, tinned and nickel plated material, iron, paint and corrosion, rod brass and condenser tubes.

Label 29.—NEW BRASS CLIPPINGS

Shall consist of the cuttings of new unleaded yellow brass sheet or plate, to be clean and free from foreign substances and not to contain more than 10% of clean brass punchings under ¼ inch. To be free of Muntz metal and naval brass.

Lace 30.—BRASS SHELL CASES WITHOUT PRIMERS

Shall consist of clean fired 70/30 brass shell cases free of primers and any other foreign material.

CODE WORD ITEM

Lady 31.—BRASS SHELL CASES WITH PRIMERS

Shall consist of clean fired 70/30 brass shell cases containing the brass primers and which contain no other foreign material.

Lake 32.—BRASS SMALL ARMS AND RIFLE SHELLS,
CLEAN FIRED

Shall consist of clean fired 70/30 brass shells free of bullets, iron and any other foreign material.

Lamb 33.—BRASS SMALL ARMS AND RIFLE SHELLS,
CLEAN MUFFLED (POPPED)

Shall consist of clean muffled (popped) 70/30 brass shells free of bullets, iron and any other foreign material.

Lark 34.—YELLOW BRASS PRIMER

Shall consist of clean yellow brass primers, burnt or unburnt. Free of iron, excessive dirt, corrosion and any other foreign material.

Maize 35.—MIXED NEW NICKEL SILVER CLIPPINGS

Shall consist of one or more nickel silver alloys and the range of nickel content to be specified, free of chrome or any other plating material. Leaded nickel silver clippings should be packed and sold separately. Not to contain more than 10% of clean punchings under ¼ inch.

Major 36.—NEW NICKEL SILVER CLIPPINGS AND SOLIDS

Shall consist of new, clean nickel silver clippings, plate, rod and forgings, and other rolled shapes, free of chrome or any other plating material. Must be sold on nickel content specifications such as 10% — 12% — 15% — 18% — 20%. Leaded nickel silver clippings should be packed and sold separately. A description as to its physical characteristics should be made in offering all nickel silver material.

Malar 37.—NEW SEGREGATED NICKEL SILVER
CLIPPINGS

Shall consist of one specified nickel silver alloy. Not to contain more than 10% of clean punchings under ¼ inch.

Malic 38.—OLD NICKEL SILVER

Shall consist of old nickel silver sheet, pipe, rod, tubes, wire, screen, soldered or unsoldered. Must not be trimmed seams alone and it is also to be free of foreign substances, iron rimmed material or other metals.

Melon 39.—BRASS PIPE

Shall consist of brass pipe free of plated and soldered materials or pipes with cast brass connections. To be sound, clean pipes free of sediment and condenser tubes.

Naggy 40.—NICKEL SILVER CASTINGS

To be packed and sold separately.

Niece 41.—NICKEL SILVER TURNINGS

To be sold by sample or analysis.

Night 42.—YELLOW BRASS ROD TURNINGS

Shall consist of strictly rod turnings, free of aluminum, manganese, composition, Tobin and Muntz metal turnings; not to contain over 3% free iron, oil or other moisture; to be free of grindings and babbitts; to contain not more than 0.30% tin and not more than 0.15% alloyed iron.

Noble 43.—NEW YELLOW BRASS ROD ENDS

Shall consist of new, clean rod ends from free turning brass rods or forging rods, not to contain more than 0.30% tin and not more than 0.15% alloyed iron. To be free of Muntz metal and naval brass or any other alloys. To be in pieces not larger than 12" and free of foreign matter.

CODE WORD ITEM

Nomad 44.—YELLOW BRASS TURNINGS

Shall consist of yellow brass turnings, free of aluminum, manganese and composition turnings; not to contain over 3% of free iron, oil or other moisture; to be free of grindings and babbitts. To avoid dispute, to be sold subject to sample or analysis.

Ocean 45.—MIXED UNSWEATED AUTO RADIATORS

Shall consist of mixed automobile radiators, to be free of aluminum radiators, and iron finned radiators. All radiators to be subject to deduction of actual iron. The tonnage specification should cover the gross weight of the radiators, unless otherwise specified.

Pales 46.—ADMIRALTY BRASS CONDENSER TUBES

Shall consist of clean sound Admiralty condenser tubing which may be plated or unplated, free of nickel alloy, aluminum alloy, and corroded material.

Pallu 47.—ALUMINUM BRASS CONDENSER TUBES

Shall consist of clean sound condenser tubing which may be plated or unplated, free of nickel alloy and corroded material.

Palms 48.—MUNTZ METAL TUBES

Shall consist of clean sound Muntz metal tubing which may be plated or unplated, free of nickel alloy, aluminum alloy, and corroded material.

Pants 49.—PLATED ROLLED BRASS

Shall consist of plated brass sheet, pipe, tubing, and reflectors, free of soldered, tinned, corroded, and aluminum painted material, Muntz metal and Admiralty tubing, and material with cast brass connections.

Parch 50.—MANGANESE BRONZE SOLIDS

Shall have a copper content of not less than 55%, a lead content of not more than 1%, and shall be free of aluminum bronze and silicon bronze.

Racks 51.—SCRAP LEAD — SOFT

Shall consist of clean soft scrap lead, free of all foreign materials such as drosses, battery lead, lead covered cable, hard lead, collapsible tubes, foil, type metals, zinc, iron and brass fittings, dirty chemical lead. Free of radioactive materials.

Radio 52.—MIXED HARD/SOFT SCRAP LEAD

Shall consist of clean lead solids, free of foreign materials, such as drosses, battery lead, lead covered cable, collapsible tubes, type metals, zinc, iron and brass fittings, dirty chemical lead. Free of radioactive materials.

Rails 53.—BATTERY PLATES

If cells (plates, separators, and lugs) or battery plates, must be reasonably free of rubber. May be bought and sold by assay or as agreed between buyer and seller.

Rains 54.—DRAINED WHOLE BATTERIES

Batteries to be free of liquid and extraneous material content. Aircraft (aluminum or steel cased) and other special batteries subject to special agreement.

Rakes 55.—BATTERY LUGS

Shall be free from battery plates, rubber and foreign material. A minimum of 97% metallic content is required.

Ranks 56.—PEWTER

Shall consist of tableware and soda-fountain boxes but should contain a minimum of 84% tin. Siphon tops to be accounted for separately. Material must be free of brass, zinc, and other foreign metals.

CODE WORD ITEM

Ranch 57.—BLOCK TIN

Block Tin must assay minimum of 98% tin, and to be free of liquids, solder, and brass connections, pewter, pumps, pot pieces, dirt.

Raves 58.—HIGH TIN BASE BABBITT

Shall contain a minimum of 78% tin and be free of brassy or zincy metals.

Relay 59.—LEAD COVERED COPPER CABLE

Free of armored covered cable, and foreign material.

Rents 60.—LEAD DROSS

Should be clean and reasonably free of foreign matter, iron, dirt, harmful chemicals or other metals. Free of radioactive materials. Assay basis, or as agreed between buyer and seller. Other metals present such as antimony, tin, etc. to be accounted for as agreed between buyer and seller.

Ropes 61.—LEAD WEIGHTS

May consist of lead balances with or without iron, as may be specified. Free of foreign materials.

Roses 62.—MIXED COMMON BABBITT

Shall consist of lead base bearing metal containing not less than 8% tin, free from Allens metal, ornamental, antimonial and type metal. Must be free from all zincy and excessive copper in the alloy.

Saves 63.—OLD ZINC DIE CAST SCRAP

Shall consist of miscellaneous old zinc base die castings, with or without iron and other foreign attachments. Must be free of borings, turnings, dross pieces, chunks, melted pieces and skimmings. All unmeltables, dirt, foreign attachments, and volatile substances (such as rubber, cork, plastic, grease, etc.) are deductible. Material containing in excess of 30% iron will not constitute good delivery.

Scabs 64.—NEW ZINC DIE CAST SCRAP

Shall consist of new or unused, clean, zinc base die castings. Castings to be unplated, unpainted, and free from corrosion.

Scope 65.—NEW PLATED ZINC DIE CAST SCRAP

Shall consist of new or unused clean, plated zinc base die castings, free from corrosion.

Scoot 66.—ZINC DIE CAST AUTOMOTIVE GRILLES

Shall consist of clean, old or used zinc base die cast automotive grilles, free from soldered material. All foreign attachments and extraneous materials are deductible.

Score 67.—OLD SCRAP ZINC

Shall consist of clean dry scrap zinc, such as sheets, jar lids, clean unalloyed castings and anti-corrosion plates. Borings and turnings are not acceptable. Material must not be excessively corroded or oxidized. All foreign attachments and extraneous materials are deductible.

Screen 68.—NEW ZINC CLIPPINGS.

Shall consist of any new pure zinc sheets or stampings free from corrosion. To contain no foreign material or attachments. Printers zinc, such as engravers zinc, lithograph sheets and addressograph plates subject to special arrangements. Printers zinc to be free of routings.

Scul 69.—ZINC DIE CAST SLABS OR PIGS

Shall consist of melted zinc base die cast materials, in smooth clean solid slabs or pigs. Material to be free from drosses and to contain a minimum zinc content of 90%. To contain a maximum of 0.1% nickel and maximum of 1% lead. Blocks are acceptable upon mutual agreement.

**Scribe 70.—CRUSHED CLEAN SORTED FRAGMENTIZERS
DIE CAST SCRAP, AS PRODUCED FROM
AUTOMOBILE FRAGMENTIZERS**

To be clean, free of dirt, oil, glass, rubber, and trash. To contain a maximum of 5% unmeltable such as free iron, copper, aluminum and other metals.

Scroll 71.—UNSORTED FRAGMENTIZERS DIE CAST SCRAP

Material to contain 65% zinc-bearing scrap. Trash, dirt, glass, rubber, oil, iron and other unmeltable not to exceed 5%. Quality to be determined by mutual agreement between buyer and seller.

**Scrub 72.—HOT DIP GALVANIZERS SLAB ZINC DROSS
(Batch Process)**

Shall consist only of galvanizers unsweated zinc dross in slab form from hot dip galvanizing (Batch Process) with a minimum zinc content of 92% and shall be free of skimmings and tramp iron. Broken pieces under 2" in diameter shall not exceed 10% of the weight of each shipment. Slabs shall not weigh over 100 pounds each. Heavier pieces acceptable upon mutual agreement between buyer and seller. Material from continuous galvanizing operation is not acceptable. Blocks are acceptable upon mutual agreement.

**Seal 73.—CONTINUOUS LINE GALVANIZING SLAB ZINC
TOP DROSS**

Shall consist of unsweated zinc dross removed from the top of a continuous line galvanizing bath, in slab form not weighing in excess of 100 pounds each, with a minimum zinc content of 90%. Heavier pieces acceptable upon mutual agreement between buyer and seller. Shall be free of skimmings. Broken pieces under 2" in diameter shall not exceed 10% of the weight of each shipment.

**Seam 74.—CONTINUOUS LINE GALVANIZING SLAB ZINC
BOTTOM DROSS**

Shall consist of unsweated zinc dross removed from the bottom of a continuous line galvanizing bath, in slab form not weighing in excess of 100 pounds each, with a minimum zinc content of 92%. Heavier pieces acceptable upon mutual agreement between buyer and seller. Shall be free of skimmings. Broken pieces under 2" in diameter shall not exceed 10% of the weight of each shipment.

Shelf 75.—PRIME ZINC DIE CAST DROSS

Shall consist of metal skimmed from the top of pot of molten zinc die cast metal. Must be unsweated, unfluxed, shiny, smooth, metallic and free from corrosion or oxidation. Should be poured in molds or in small mounds weighing not over 75 pounds each. Zinc shall be minimum of 85%.

**ANY OTHER GRADES OF ZINC-BEARING MATERIALS NOT
MENTIONED ARE SUBJECT TO SPECIAL ARRANGEMENT**

Table 76.—NEW PURE ALUMINUM CLIPPINGS

Shall consist of new, clean, unalloyed sheet, clippings and/or aluminum sheet cuttings, free from oil and grease, foil and any other foreign substances and from punchings less than 1/2" in size.

**Taboo 77.—MIXED LOW COPPER ALUMINUM CLIPPINGS
AND SOLIDS**

Shall consist of new, clean, uncoated and unpainted low copper aluminum scrap of two or more alloys and to be free of 7000 series, foil, hair wire, wire screen, dirt, and other foreign substances. Grease and oil not to total more than 1%. Also free from punchings less than 1/2" in size. New can stock subject to arrangement between buyer and seller.

Tabor 78.—MIXED OLD ALLOY SHEET ALUMINUM

Shall consist of clean old alloy sheet aluminum of two or more alloys and to be free of 7000 series, foil, venetian blinds, castings, hair wire, screen wire, food or beverage containers, pie plates, dirt, and other foreign substances. Oil and grease not to total more than 1%. Up to 10% painted sidings and awnings permitted.

**Talnt 79.—SCRAP SHEET AND SHEET UTENSIL
ALUMINUM**

Shall consist of clean, unpainted old 2S or 3S aluminum sheet and sheet utensils, free from hub caps, radiator shells, airplane sheet foil, food or beverage containers, pie plates, oil cans and bottle caps, dirt, and other foreign substances. Oil and grease not to total more than 1%.

Take 80.—NEW ALUMINUM CAN STOCK

Shall consist of new low copper aluminum can stock and clippings, clean, lithographed or not lithographed, and coated with clear lacquer but free of lids with sealers, iron, dirt and other foreign contamination. Oil not to exceed 1%.

Talc 81.—OLD CAN STOCK

Shall consist of clean old aluminum cans, decorated or clear, free of iron, dirt, liquid and/or other foreign contamination.

**Talcred 82.—SHREDDED ALUMINUM USED BEVERAGE
CAN (UBC) SCRAP**

Shall have a maximum particle size of 1 1/2". Density to be 14 to 24 lbs. per cu. foot. Fines by mesh not to exceed 5% max. through No. 4 (U.S.) mesh, and 1% max. through No. 12 (U.S.) mesh. Material not to exceed 1/2% moisture and not to have been stored outdoors. Must be magnetically separated and free of steel, lead, plastics, glass, wood, dirt, grease, oil, trash, and other foreign substances. Any and all aluminum items other than used beverage cans are not acceptable. Items not covered in this specification are subject to special arrangement between buyer and seller.

**Taldon 83.—BALED ALUMINUM USED BEVERAGE CAN
(UBC) SCRAP**

Shall have a density of 12 to 17 lbs. per cu. foot for unflattened UBC scrap, and up to a maximum of 22 lbs. for flattened baled UBC cans. Size: Minimum thirty cubic feet, with 24-inch minimum dimension in one direction, and a 72-inch maximum dimension. Hydraulically briquetted material is not acceptable. Minimum tying methods shall be as follows: Four to six 3/4" x .020" steel bands or six to fifteen #13 gauge steel wires (aluminum bands or wires are acceptable in equivalent strength and number), and to assure bales to arrive intact with reasonable commercial handling. Bands or wires of other material are not acceptable. Use of support sheets of any material are not acceptable. Material to be free of excessive moisture and must not have been stored outdoors. Must be magnetically separated material and free of steel, lead, plastics, glass, wood, dirt, grease, trash, and other foreign substances. Any and all aluminum items other than used beverage cans not acceptable. Items not covered in this specification are subject to special arrangement between buyer and seller.

Tale 84.—PAINTED SIDING

Shall consist of clean, low copper aluminum siding scrap, painted one or two sides, free of iron, dirt, corrosion, fiber backing or other types of foreign contamination.

Talent 85.—COATED SCRAP

Shall consist of awnings, venetian blinds, vinyl, plastic, etc. Shall be subject to special arrangements between buyers and sellers.

Talk 86.—ALUMINUM COPPER RADIATORS

Shall consist of clean aluminum and copper radiators, and/or aluminum fins on copper tubing, free of brass tubing, iron and other foreign contamination.

Tall 87.—E. C. ALUMINUM NODULES

Shall consist of clean E. C. aluminum, chopped or shredded, free of screening, hair-wire, iron, insulation, copper and other foreign contamination. Must be free of minus 20 mesh material. Must contain 99.45% aluminum content.

Talon 88.—NEW PURE ALUMINUM WIRE AND CABLE

Shall consist of new, clean, unalloyed aluminum wire or cable free from hair wire, wire screen, iron, insulation and any other foreign substance.

Tann 89.—NEW MIXED ALUMINUM WIRE AND CABLE

Shall consist of new, clean unalloyed aluminum wire or cable which may contain up to 10% 6000 series wire and cable free from hair wire, wire screen, iron, insulation and any other foreign substance.

Taste 90.—OLD PURE ALUMINUM WIRE AND CABLE

Shall consist of old, unalloyed aluminum wire and cable containing not over 1% free oxide or dirt and free from hair wire, wire screen, iron, insulation and any other foreign substance.

Tassel 91.—OLD MIXED ALUMINUM WIRE AND CABLE

Shall consist of old, unalloyed aluminum wire and cable which may contain up to 10% 6000 series wire and cable with not over 1% free oxide or dirt and free from hair wire, wire screen, iron, insulation and any other foreign substance.

Tarry 92.—ALUMINUM PISTONS**(a) Clean Aluminum Pistons**

Shall consist of clean aluminum pistons to be free from struts, bushings, shafts, iron rings and any other foreign materials. Oil and grease not to exceed 2%.

(b) Aluminum Pistons with Struts

Shall consist of clean whole aluminum pistons with struts to be free from bushings, shafts, iron rings and any other foreign materials. Oil and grease not to exceed 2%.

(c) Irony Aluminum Pistons

Should be sold on recovery basis, or by special arrangements with purchaser.

Teens 93.—SEGREGATED ALUMINUM BORINGS AND TURNINGS

Shall consist of clean, uncorroded aluminum borings and turnings of one specified alloy only and subject to deductions for fines in excess of 3% through a 20 mesh screen and dirt, free iron, oil, moisture and all other foreign materials. Material containing iron in excess of 10% and/or free magnesium or stainless steel or containing highly flammable cutting compounds will not constitute good delivery.

Tellc 94.—MIXED ALUMINUM BORINGS AND TURNINGS

Shall consist of clean, uncorroded aluminum borings and turnings of two or more alloys and subject to deductions for fines in excess of 3% through a 20 mesh screen and dirt, free iron, oil, moisture and all other foreign materials. Material containing iron in excess of 10% and/or free magnesium or stainless steel or containing highly flammable cutting compounds will not constitute good delivery. To avoid dispute should be sold on basis of definite maximum zinc, tin and magnesium content.

Tense 95.—MIXED ALUMINUM CASTINGS

Shall consist of all clean aluminum castings which may contain auto and airplane castings but no ingots, and to be free of iron, dirt, brass, babbitt and any other foreign materials. Oil and grease not to total more than 2%.

Tepid 96.—WRECKED AIRPLANE SHEET ALUMINUM

Should be sold on recovery basis or by special arrangements with purchaser.

Terse 97.—NEW ALUMINUM FOIL

Shall consist of clean, new, pure, uncoated, unalloyed aluminum foil, free from anodized foil, radar foil and chaff, paper, plastics, or any other foreign materials. Hydraulically briquetted material by arrangement only.

Testy 98.—OLD ALUMINUM FOIL

Shall consist of clean, old, pure, uncoated, unalloyed aluminum foil, free from anodized foil, radar foil and chaff, paper, plastics, or any other foreign materials. Hydraulically briquetted material by arrangement only.

Thigh 99.—ALUMINUM GRINDINGS

Should be sold on recovery basis or by special arrangements with purchaser.

Thirl 100.—ALUMINUM DROSSES, SPATTERS, SPILLINGS, SKIMMINGS AND SWEEPINGS

Should be sold on recovery basis or by special arrangements with purchaser.

Throb 101.—SWEATED ALUMINUM

Shall consist of aluminum scrap which has been sweated or melted into a form or shape such as an ingot, pig or slab for convenience in shipping; to be free from corrosion, drosses or any foreign materials. Should be sold subject to sample or analysis.

Tooth 102.—SEGREGATED NEW ALUMINUM ALLOY CLIPPINGS AND SOLIDS

Shall consist of new, clean, uncoated and unpainted aluminum scrap of one specified aluminum alloy only and to be free of foil, hair wire, wire screen, dirt, and other foreign substances. Oil and grease not to total more than 1%. Also free from punchings less than 1/2" in size. New can stock subject to arrangement between buyer and seller.

Tough 103.—MIXED NEW ALUMINUM ALLOY CLIPPINGS AND SOLIDS

Shall consist of new, clean, uncoated and unpainted aluminum scrap of two or more alloys free of 7000 series and to be free of foil, hair wire, wire screen, dirt, and other foreign substances. Oil and grease not to total more than 1%. Also free from punchings less than 1/2" in size. New can stock subject to arrangement between buyer and seller.

Tread 104.—SEGREGATED NEW ALUMINUM CASTINGS, FORGINGS AND EXTRUSIONS

Shall consist of new, clean, uncoated aluminum castings, forgings, and extrusions of one specified alloy only and to be free from sawings, stainless steel, zinc, iron, dirt, oil, grease and other foreign substances.

Trump 105.—ALUMINUM AUTO CASTINGS

Shall consist of all clean automobile aluminum castings of sufficient size to be readily identified and to be free from iron, dirt, brass, babbitt bushings, brass bushings, and any other foreign materials. Oil and grease not to total more than 2%.

CODE WORD ITEM

Twang 106.—INSULATED ALUMINUM WIRE SCRAP

Shall consist of aluminum wire scrap with various types of insulation. To be sold on a sample or recovery basis, subject to agreement between buyer and seller.

Twist 107.—ALUMINUM AIRPLANE CASTINGS

Shall consist of clean aluminum castings from airplanes and to be free from iron, dirt, brass, babbitt bushings, brass bushings, and any other foreign materials. Oil and grease not to total more than 2%.

**Twitch 108.—FRAGMENTIZER ALUMINUM SCRAP
(From Automobile Shredders)**

The material, as received, must be dry and not to contain more than 3% maximum free zinc, 1% maximum free magnesium, and 1.5% maximum free iron and stainless. Not to contain more than a total 5% maximum of non-metallics, of which no more than 1% shall be rubber and plastics. To be free of excessively oxidized material. Any variations to be sold by special arrangement between buyer and seller.

ITEMS NOT COVERED SPECIFICALLY IN ALUMINUM SCRAP SPECIFICATIONS SHOULD BE DISCUSSED AND SOLD BY SPECIAL ARRANGEMENT BETWEEN BUYER AND SELLER.

Wafer 109.—MAGNESIUM CLIPS

Shall consist of clean magnesium clips in crucible size, free of copper, aluminum, and zinc flashings and excessive oil and grease. To be free of all foreign attachments.

Walnut 110.—MAGNESIUM SCRAP

Shall consist of magnesium castings, magnesium engine blocks and transmission casings, bomber and car wheels, extrusions, and sheet. Material to be free from brass and copper inserts and all foreign attachments. To be free of anodes, hollow castings and explosives. Percentages of and penalties for dirt, oil, grease, and iron to be subject to agreement between buyer and seller. Excessively large pieces to be negotiated between buyer and seller.

Wine 111.—MAGNESIUM ENGRAVER PLATES

To be free of copper, aluminum, zinc, and electrotype plates. To be clean and free of all foreign attachments. Magnesium plates shipped loose by agreement between buyer and seller.

Wood 112.—MAGNESIUM DOCKBOARDS

Shall consist of clean magnesium dockboard cut or broken to size agreed upon by buyer and seller. To be free of all foreign attachments.

World 113.—MAGNESIUM TURNINGS

It is recommended that these materials be sold by special arrangement between buyer and seller.

Wrench 114.—FRAGMENTIZED MAGNESIUM SCRAP

Shall consist of clean crushed magnesium scrap free of brass, copper and other foreign material.

Aroma 115.—NEW NICKEL SCRAP

Shall consist of clean new sheet, plate, bar, tube, and any other wrought nickel scrap solids. Nickel minimum 99%. Free of castings, as well as any foreign attachments or other contamination.

Burly 116.—OLD NICKEL SCRAP

Shall consist of old and/or new sheet, plate, bar, tube, and any other wrought nickel scrap solids. Material to contain a minimum of 98% nickel. This grade to be free of castings, soldered, brazed, sweated, or painted material, other metallic coating, foreign attachments, and any other contamination.

CODE WORD ITEM

Cache 117.—MISCELLANEOUS TYPES OF NICKEL SCRAP

Shall consist of miscellaneous types of nickel scrap, such as carbonized scrap, castings, strippings, peelings, baskets, and/or turnings. Particulars regarding physical description, assay, and packaging to be agreed on between buyer and seller.

Dandy 118.—NEW CUPRO NICKEL CLIPS AND SOLIDS

Shall consist of clean, new, segregated (normally accepted analysis grades) either 70/30, 80/20, or 90/10 cupro nickel tube, pipe, sheet, plate, or other wrought solid forms. Must be free of foreign attachments or any other contamination.

Daunt 119.—CUPRO NICKEL SOLIDS

Shall consist of old, and/or new, segregated (normally accepted analysis grades) either 70/30, 80/20, or 90/10 cupro nickel tube, pipe, sheet, plate, or other wrought solid forms. Maximum 2% sediment allowable. Any other forms of cupro nickel solids such as castings, gates, risers, spills, etc., packaged separately, may or may not be included, only upon agreement between buyer and seller. Must be free of foreign attachments and all other contamination. Other particulars concerning physical description, analysis and packaging to be agreed upon between buyer and seller.

Delta 120.—SOLDERED CUPRO NICKEL SOLIDS

Shall consist of segregated (normally accepted analysis grades) either 70/30, 80/20, or 90/10 cupro nickel solids, soldered, brazed, or sweated, must be free of trimmed seams and edges and all other contamination.

Decoy 121.—CUPRO NICKEL SPINNINGS, TURNINGS, BORINGS

Shall consist of clean segregated (normally accepted analysis grades) either 70/30, 80/20, or 90/10 cupro nickel spinings, turnings, or borings. Particulars concerning physical description, analysis, packaging, to be agreed upon between buyer and seller.

Hitch 122.—NEW MONEL CLIPPINGS AND SOLIDS

Shall consist of clean, new, Regular and/or R-Monel sheet, plate, bar, rod, tube, pipe, or any other wrought scrap, free of any foreign attachments or any other contamination.

Ideal 123.—OLD MONEL SHEET AND SOLIDS

Shall consist of new and/or old clean Regular and/or R-Monel sheet, pipe, plate, rod, and all other wrought scrap solids. Must be free of foreign attachments or any other contamination. (To exclude soldered, brazed, and unclean sweated material.)

Indian 124.—K-MONEL RODS AND OTHER SOLIDS

Shall consist of clean K-Monel rods and other solids.

Junto 125.—SOLDERED MONEL SHEET AND SOLIDS

Shall consist of soldered and/or brazed, Regular or Miscellaneous grades of Monel Alloys (with basic minimum 63% Nickel contained in any alloy itself), in either wrought or cast form. Must be free of trimmed seams and edges, non-metallic filling, foreign attachments, and all other contamination. Particulars concerning physical description, assay, and packaging to be agreed upon between buyer and seller.

Lemon 126.—MONEL CASTINGS

Shall consist of various types of clean Monel castings, assaying minimum 60% nickel must be free of foreign attachments, or any other contamination.

Lemur 127.—MONEL TURNINGS

Shall consist of mixed Monel turnings and borings containing a minimum of 60% nickel content, on a dry basis.

CODE WORD ITEM

Pekoe 128.—200 SERIES STAINLESS STEEL SCRAP SOLIDS

Shall consist of all types of clean AISI Series Stainless Steel Scrap Solids, which contain a maximum of .5% copper, free of foreign attachments and other contamination.

Sabot 129.—STAINLESS STEEL SCRAP

Shall consist of clean 18-8 type stainless steel clips and solids containing a minimum 7% nickel, 16% chrome, and have a maximum of .50% molybdenum, .5% copper, .045% phosphorous, and .03% sulfur, and otherwise free of harmful contaminants. Particulars concerning physical description, grading, additional analysis, and preparation to be agreed upon between buyer and seller.

Ultra 130.—STAINLESS STEEL TURNINGS

Shall consist of clean 18-8 type stainless steel turnings containing a minimum of 7% nickel and 16% chrome, and to be free of nonferrous metals, non-metallics, excessive iron, oil and other contaminants. Particulars concerning physical description, assay, packaging to be agreed upon between buyer and seller.

Rusten 131.—11-14% CHROME STAINLESS SCRAP

Straight chrome stainless scrap shall contain 11-14% chrome, phosphorous and sulphur .03% maximum, and shall not contain over .50% nickel and otherwise be free from harmful contaminants. Material to be prepared to individual consumer's specifications.

CODE WORD ITEM

Rusthlrty 132.—14-18% CHROME STAINLESS SCRAP

Straight chrome stainless scrap shall contain 14-18% chrome, phosphorous and sulphur .03% maximum, and shall not contain over .50% nickel and otherwise be free from harmful contaminants. Material to be prepared to individual consumer's specifications.

Vaunt 133.—EDISON BATTERIES

To be sold free of crates, copper terminal connectors, and drained free of excess liquid, to be free of type "B" batteries.

ANY OTHER PARTICULARS IN THE NICKEL ALLOY GROUP CONCERNING PHYSICAL DESCRIPTION, ASSAY, AND PACKAGING TO BE AGREED UPON BETWEEN BUYER AND SELLER.

**MIXED NONFERROUS METALS
FROM RESOURCE RECOVERY FACILITIES**

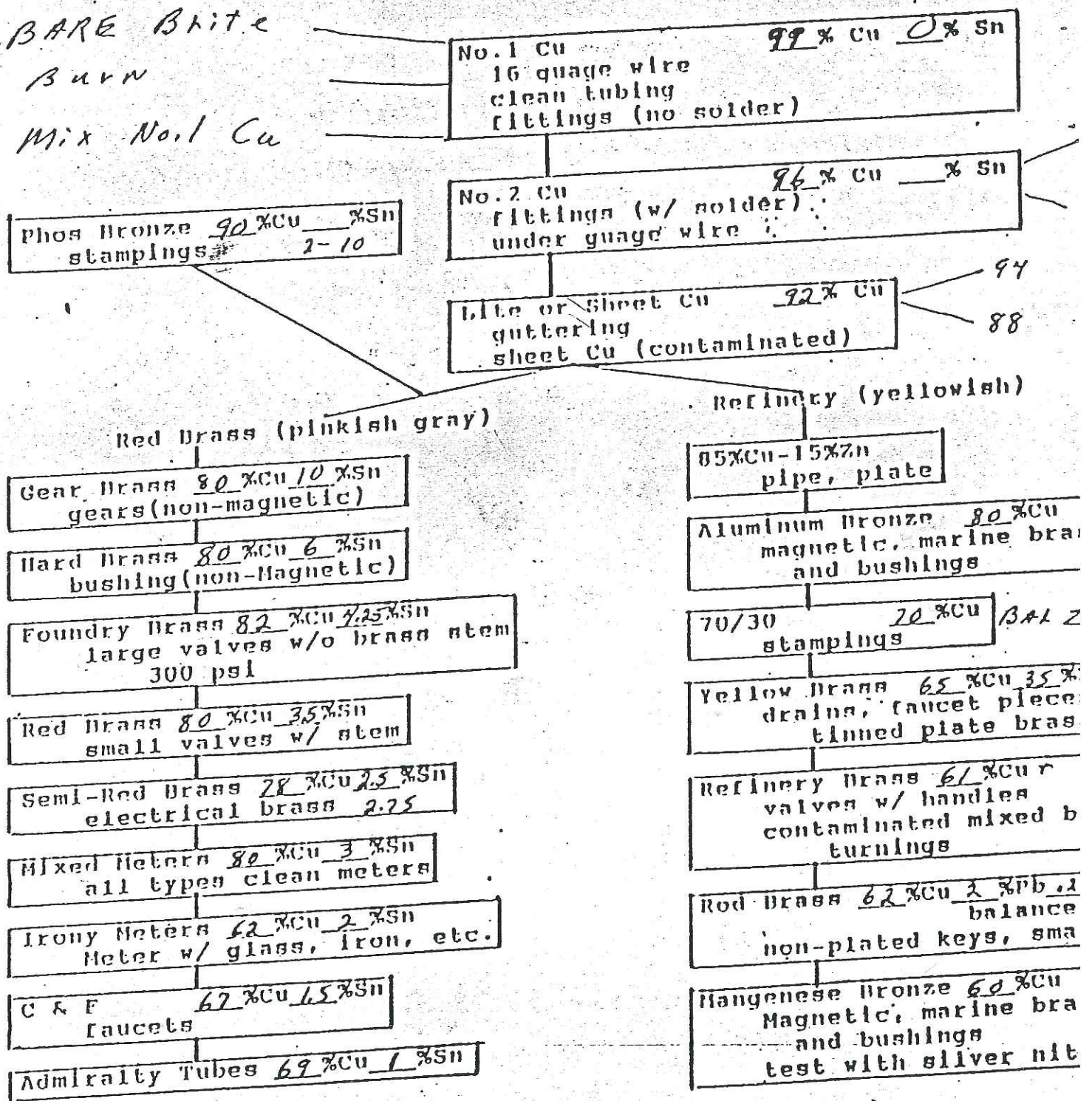
Shall consist of mixed metals containing predominantly zinc, brass, copper, lead, aluminum and stainless steel. Metals shall be relatively free of foreign attachments and all pieces should be capable of passing over 1/2" mesh screen. Mixture should not contain more than 3% iron and no more than an additional 3% foreign, non-metallic substances. Material should be loaded loosely in drums, boxes or other containers and should not be briquetted, baled or otherwise hydraulically compressed.

METAL IDENTIFICATION

BARE WHITE

BURN

Mix No. 1 Cu



NO.1 BARE WHITE (99%), UNCOATED, UNALLOYED, GREATER THAN 16 GAUGE WIRE OR .020

NO.1 BURN'T COPPER (99% CU) CONSISTS OF BURN'T, UNCOATED, UNALLOYED WIRE 7 SCRA

NO.2 CU (96%) RANGE IS 94 TO 98% CU CONSISTS OF TUBING, WIRE, TWYERS

WHITE CU AVG. (92%) RANGE 88 TO 94 CU GUTTERING, SHEET CU, ICE BOX UNITS ETC. NO NICKEL TUBE'S OR BRUSHINGS WITH LIDS

GEAR BRASS (80 CU, 10 SN) NORMALLY GEAR AND 90/10 PRESS MATERIALS

HARD BRASS (80 CU 6 SN) SLEEVES ETC. NON MAGNETIC (NO BRASS BACKS OR JOURNALS)

FOUNDRY RED (82 CU 4.25 SN) CONSIST OF VALVES GRAVE MARKERS FIRE EXT. TUBS (NO BACKS OR JOURNALS)

RED BRASS 980 CU 3.5 SN) MIX OF VALVES, METERS, SWEET FITTINGS, AND III GR (NO DR JOURNALS)

MIXED METERS (80 CU 3.0 SN) ALL TYPES HERSEY TO BAIXERS MIXED NO IRON BOT.

MI RED & TRIDENT METERS (78 CU 2.5 SN) II-STAND, TRIDENT W/OUT IRON BOTTOM

COCKS & FAUCETS (67 CU 1.5 SN)

ADMIRAL TUBES (69 CU 1 SN)

JOURNALS UNLINED (73 CU 4.25 SN), LINED JOURNALS (63 CU 4 SN) ARE TRADED.

RADIATORS (65 CU 2.5 SN) WATCH OUT FOR IRONY SIDES, HEAT CORES, & OVERSIZE

HEAT CORES (56 CU 2.25 SN)

MODINE TUBES (52-56 CU 3.0 SN)

REFINERY BRASS (61-88 CU) ***ALUM BRONZE @ 80 CU, 70/30 @ 70 CU, YELLOW BRASS (FE BOTTOM METERS AS RD)

5 65 CU, MANG BRONZE @ 58 CU, THERE IS A MAX OF 10 TO 15% IRON ALLOWED

SKINS (45 CU) CAN RUN 30 TO 60% CU AND SOMETIMES SN FINES RUNS AND DROSS

SLAG (30 CU) RUNS 20 TO 40 CU HARD IN TEXTURE SIMILIAR TO ROCKS AND BRICKS

COPPER IRONY (15 -60 CU) USUALLY HAVING 20-80% IRON, MOTORS & DAB ONLY EXCEPT III & FE NO COMBUST.

COMBUSTIBLE (10-80, CU) USUALLY OVER 15 TO 20 COMBUSTIBLE *** NOT USING ***

ES (10-90 CU) EVERYTHING FROM ASHES TO CU FACE POWDER SMALL IN SIZE ***FOR RE

NUMBER ONE COPPER, BARE BRIGHT (99.9% CU) -

THIS COPPER IS NEW, CLEAN, BARE BRIGHT, UNCOATED UNTINNED, AND UNALLOYED WIRE AND SCRAP. THE WIRE MUST BE ATLEAST SIXTEEN GUAGE AND THE TUBING MUST HAVE ONE END OPEN TO AVOID WATER OR MOISTURE ENTRAPMENT. PUNCHINGS AND CLIPS, THAT ARE .020 IN THICKNESS, OR LARGER MUST BE CLEAN, DRY AND KEPT SEPARATE. TROLLEY WIRE, PIECES LARGER THAN 36" , CASTINGS, AND WARE PLATES ARE NOT ACCEPTABLE. ALL MATERIAL SHOULD BE IN BOXES ON SKIDS, OR BALES. DRUMS ARE NOT ACCEPTABLE.

NUMBER ONE COPPER, BURNT (99% CU)-

THIS COPPER CONSISTS OF BURNT, UNCOATED, UNTINNED, UNALLOYED WIRE AND SCRAP. THIS ALSO INCLUDES SCRAP ATLEAST SIXTEEN GUAGE AND SCRAP FREE OF ASH. USED TUBING MUST BE FREE OF DIRT AND CORROSION. IT MUST ALSO HAVE ONE END OPEN, TO AVOID WATER ENTRAPMENT. BURNT, BRITTLE WIRE, TROLLEY WIRE, CASTINGS, ENGRAVING PLATES, BOILER TUBES, TURNINGS, BURNT LEAD CABLES, BRIQUETT COPPER, AND WELDED BUS BAR ARE NOT ACCEPTABLE. ALL MATERIAL MUST BE IN BOXES, ON SKIDS OR BALES AND SHOULD BE NO LONGER THAN 36" IN LENGTH; WITH THICKNESS OF ANY PUNCHINGS OR CLIPS BEING ATLEAST .020.

NUMBER TWO COPPER - (96% CU)

THIS COPPER RANGES FROM 94% TO 98% , AND WE ARE LOOKING FOR AN AVERAGE OF 96%. WE WILL PRORATE FROM 96% UP OR DOWN. STEEL, ASH AND NON-COPPER ITEMS CAN BE TAKEN OFF OF THE WEIGHT AS DUNNAGE OR REFLECTED IN THE ASSAY. WE HAVE 98-1 TIN COATED WIRE, ENAMEL WIRE 92 - 97, TUBING 99%, SOLDER JOINTS,

CHOPS, BURNT WIRE NOT BRITTLE. SOME OF THE SILVERISH COATING COULD BE NICKEL INSTEAD OF TIN, THE COATING WOULD CRACK WHEN BENT AND WOULD BE MAGNETIC, IF YOU BROKE OFF A SMALL PIECE. TWYERS AND BOSCH PLATES WOULD BE 97% AS LONG AS THEY DID NOT HAVE AN EXCESS AMOUNT OF IRON. COPPER TURNS ARE BOUGHT AT 96% WITH OIL OFF TOP AS DUNNAGE. NOT ACCEPTABLE IS BERYLLIUM COPPER AND CUPRO NICKEL TUBES. CUPRO NICKEL TUBES ARE SLIGHTLY MAGNETIC AND HAVE A LIGHTER SHINY LOOK.

LITE COPPER (AVERAGE IS 92%) -

RUNS FROM 88 TO 94% COPPER CONSISTING OF COPPER GUTTERING, ENAMEL COPPER HAIR WIRE, SHEET COPPER, ICE BOX FREEZER UNITS, 91% COPPER, OIL COOLERS FROM TRUCKS 86-90% DEPENDS ON IRON OR BRASS SPACERS, LARGE LOCOMOTIVE TRANSFORMER COILS WITHOUT IRON, RUNS 92-93%, WITH STEEL CENTERS RUNS 55% COPPER. WATCH FOR EXCESSIVE TAR AND ROCK ON GUTTERING AND DEDUCT AS DUNNAGE. COPPER COILS ON PLASTIC AND PAPER SOME TIMES MAKE LITE COPPER, BUT MOST OF THE TIME ARE HIGH GRADE REFINERY.

RED BRASS -

HAS VARIOUS RANGES FROM PHOS BRONZE 90% COPPER 10 TIN, GEAR BRASS 80%- 10 TIN, HARD BRASS 80%- 6 TIN, FOUNDRY 82%-4.25 TIN, REGULAR RED 80%-3.5 TIN, MIX METER 80%-3 TIN, AND SEMI-RED BRASS 78%-2.5 TIN, ALL OF WHICH ARE NON MAGNETIC AND TURN VARIOUS SHADES OF GRAY TO BLACK WITH 2% AgNO_3 . ALMOST ALL RED BRASSES COME AS A MIXED PACKAGE AND CARE SHOULD BE TAKEN TO PERCENTAGE THE HI TO LOW SO IT CAN BE CATAGORIZED INTO ONE OF THE VARYING CATAGORIES. ONE PERCENT TIN COULD BE COUNTED AS 6% COPPER WHEN DOING FINAL ADJUSTMENTS. EXAMPLE, 78% COPPER AND 4% TIN COULD BE TAKEN AS REGULAR RED AT 80% COPPER AND 3.5% TIN BECAUSE WE USED THE EXTRA TIN TO BRING UP THE COPPER. LINED JOURNALS AND BRASS BACKS ARE NOT ACCEPTABLE IN RED BRASS PACKAGES.

RADIATORS (65% COPPER 2.50 TIN) -

WITHOUT ANY IRONY SIDES AND FINES COME FROM AUTOMOBILES AND TRUCKS. SPECIAL CARE SHOULD BE TAKEN WHEN ESTIMATING THE AMOUNT OF HEATER CORES (56% COPPER 2.25 TIN) PRESENT IN A LOAD, 2% IS ALLOWED PER CONTRACT. THE IRONY SIDES CAN RUN FROM 5% TO 30% IRON, AND IN RARE CASES WHEN HAVING COMPLETE HOUSING OR SHROUD IT COULD EVEN RUN 35% COPPER. IRONY CAPS AND RUBBER HOSES CAN ALSO ADD 2 TO 8% TO THE DUNNAGE OF RADIATORS THAT HAVE THEM ON. IRON IS DEDUCTED AS DUNNAGE.

THERE HAS TO BE A 3 CENT CHARGE FOR CUTTING OVER SIZED RADIATORS. MODINE TUBES (56% COPPER 2.50 TIN) ARE THE TUBES INSERTED INTO THE COPPER FINS THAT MAKE UP THE COMPONENTS OF A RADIATOR. A SPECIAL CODE (507) IS BEING SET UP FOR RADIATORS WITH 15 TO 20% IRON.

COCKS AND FAUCETS (67% COPPER AND 1.5 TIN) -

PLUMBING FIXTURES, H-STANDS, FLEX GAS PIPES, FLUSH VALVES AND DRAINS. YOU WILL GET DIE CAST FAUCET HOUSINGS, WITH RED BRASS H-STANDS ATTACHED. SOME OF THE H-STANDS ARE YELLOW BRASS FITTINGS WITH COPPER TUBING CONNECTING THE FITTINGS. SWEAT FITTINGS CONNECTED TO COPPER TUBING, RED BRASS VALVES, AND H-STANDS CONNECTED TO GALVANIZED PIPE AND FITTINGS, DRAINS AND EVEN YELLOW BRASS ITEMS. LOOK TO MAKE SURE YOU HAVE ENOUGH TIN IN THE LOT FOR 1.50%; USUALLY THE COPPER IS THERE 98% OF THE TIME.

JOURNALS LINED (63% COPPER 4 TIN) -

WITH A LEAD TIN BABBIT THAT HAS A HIGH ANTIMONY (Sb) CONTENT. COMES FROM RAILROAD CARS. LINED JOURNALS ARE NOT ACCEPTABLE AND MUST BE SWEATED OR UNLINED (74% COPPER 4.25 TIN)/FREE OF BABBIT.

REFINERY BRASS (61-87)-

REFINERY BRASS WHICH COVERS A LARGE RANGE FROM 85% COPPER, 15 ZINC SCREEN TRADED, ALUMINUM BRASS 80% COPPER 10 ALUMINUM, .70/30 BRASS TRADED, YELLOW BRASS 65% COPPER 2 LEAD BALANCE ZINC, ROD BRASS 60% COPPER 3 LEAD BALANCE ZINC, TO MANGANESE BRONZE 60% COPPER. IN ORDER TO CONSUME REFINERY WE WANT LESS THAN 10 TO 15% IRON. ITEMS SUCH AS 85/15, 70/30, YELLOW BRASS, AND ROD BRASS WHICH WE TRADE MUST BE FREE OF IRON AND CONTAMINATION; WITH LESS THAN 1% OIL.

Prinse

SKINS (45-60% COPPER) -

CONSISTS OF RUNS, SPATTERS, SKINS, FINES, DROSS, REFRACTORY, BRICK AND SANDSTONE. IF THE RUNS OR METALLIC IS YELLOW IN COLOR, AND MAY CONTAIN ALUMINUM METALLICS, THERE IS A GOOD CHANCE NO TIN. EVEN IF THE RUN, METALLICS ARE DARK PINKISH GRAY, IT DOESN'T NECESSARILY MEAN TIN. SOMETIMES YOU CAN'T FIND INDICATORS SUCH AS A PARTIALLY CAST VALVE, OR RED BRASS ITEMS THAT INDICATE

THEY ARE MAKING TIN BEARING ITEMS OUT OF THE METAL. MUST HAVE LESS THAN 50% FINES FOR USAGE. TRADING MATERIAL WITH OVER 50% FINES AND NO TIN.

SLAG (30%) -

IS HARD ROCK LIKE TEXTURE. BOUGHT FOR EXPORT ONLY.

C.B.M. (COPPER BEARING MATERIAL) -

SOMETIMES REFERRED TO AS THE COPPER IRONY SCRAP. RANGES FROM 15 TO 60% COPPER AND VARIES IN AMOUNTS OF IRON AND FINES OR CONTAMINATIONS.

MOTORS 15%, ARMATURES 25%, TRANSFORMERS 20%, AND FIELDS 35 % ARE ALL USED ALONG WITH D.A.B. AS DIRECT ADD IRONY. ALL OTHERS DUE TO ALUMINUM, PLASTIC, AND FINES ARE EXPORTED OR TRADED.

FINES

SMALL GRANULAR IN TEXTURE AND ARE BOUGHT FOR EXPORT ONLY. THE FEW EXCEPTIONS ARE GRINDINGS WITH COPPER CONTENT ABOVE 60% COPPER AND TIN CONTENT ABOVE 1% SN, WHICH WE WILL USE HERE. ABSOLUTELY NO DUST OR POWDER. RECOVERY ON FINES IS MINIMAL DUE TO LARGE AMOUNTS GOING UP STACKS UNLESS BRIQUETTED OR PALLETIZED IN TO LARGE PIECES.

COMBUSTIBLE

BOUGHT FOR TRADING IN VARIOUS GRADES.

NO.1 INSULATE YIELD IS GREATER THAN 65% RECOVERY AND MUST BE LARGER THAN 16 GAUGE WIRE.

NO.2 INSULATED YIELD AT LEAST 50% COPPER.

NO.3 INSULATED YIELD AT LEAST 40% COPPER RUN 35 TO 40% COPPER. NO TELEPHONE CORD EXTENTIONS, WHICH ARE MADE OF COPPER FOIL OVER NYLON. TELEPHONE CORDS OR SO THIN IT WILL YIELD 0% COPPER.,



F 9.0 Copper scrap:

shipped as 97% , however , isolated bars of 80%, isolated cable
of 94-96% , average: 92%



F 9.1 Copper scrap

shipped as 92%, graded at 77% due to ashes, iron, cable with plas



F 9.2 Gunmetal Cu/ 63% Sn/ 0,8%
shipped as 78/4, except some bigger pieces all small items
are yellow brass





F 9.4 Copper scrap 94%
thicker enamelled wire with some plastic



F 9.5 Low grade
fields: 24,5% Cu



F 9.7 Low grade : house and garden

mixed low grade qualities Cu/ 22%



F 9.8 Low grade
coils on iron frame Cu: 30,5%



F 9.22 Millberry No 1
trading quality: 99%



F 9.13 Millberry Nol

refused for trading, due to some crease Cu: 99%



F 9.14 Refinery

Cu-iron TV-wire, Cu: 55% Fe: 44% rest is paper



F 9.15 Refinery

Fine shredder with combustibles

Cu: 68,7% Sn: 0,4% Combustibles 14%



F 9.16 Refinery

shredder, Cu: 69,7% As: 429 μ /t combustibles 7,7%



F 9.18 Radiators with iron frames
29,4% deduction of weight



F 9.19 Granade heads Cu: 60,6%



F 9.21 Insulated copper cable dry
Cu: 94%



F 9.22/24: German silver in yellow brass(12-20% NI)





F 10.1 Gunmetal scrap

shipped as 82/6, graded: 78/4



F10.2 Bimetal wire

very good quality: 45%



F 10.3 Radiators

heater cores heavy leaded: Cu: 55% Sn: 1,8% Pb: 20%



F 10.4 Low grade: armatures with collector

short one: 23,4% longer one: 24,1%



F 10.5 Briquetted copper wire

whole lot was shipped at 94%, however as shown, inside some
briquettes sand and ashes were included

the whole lot assayed 75% Cu



F 10.6 Low grade

copper wire with iron shielding Cu: 12%



F 10.7 Low grade

due to very low Cu-Fe (12%) wire, 1/3 of weight, the whole lot
is graded at 26% Cu



F 10.8 Bigr coil

Cu: 80%



F 10.9-10 Gunmetal

shipped at 78/4, however, 80% of the weight is yellow brass
Cu: 61,7% Sn: 1,13%





F 10.11 Coolers Cu: 95%



F 10.12: Cooling pipes heavily soldered
brass pipe with tinned copper finns
Cu: 78% Sn: 4%



F 10.13 Low grade
left: 26%
right: 21,6%



F 10.14 Low grade mixed in copper scrap
Cu-Ni-Fe pinns briquetted : only 28% Cu, magnetic and
refused for nickel



F 10.15 Refinery

good quality shredder Cu: 66,1% Sn: 1,50%



F 10.16 Low grade 15% Cu

rounded coils without cable: 13,5% with cable: 14%



F 10.17 Radiators

alu radiator with copper cooling pipes

Cu: 34,7%



F 10.18 Battery plates

Cu: 28% Fe: 63%



F 10.19 Refinery

alubronze chains: good quality alubronze without Ni
non magnetic Cu: 86%



F 10.20 Refinery

pinns and resistances partly tinned

Cu: 52,5% Sn: neglectable Ag: 3800 g/t



F 10.21 Refinery

brass good quality: Cu:76% Al: 2%



F 10.22 Watermeters not dismantled

brass head,brass pinn, partly complete brass

Cu: 65% Sn: 3%